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DESERT CALENDAR

- Aug. 1-13—Northern Arizona Artists, recently organized society, will exhibit for the first time—at Museum of Northern Arizona, Flagstaff.
- Aug. 2—Fiesta de Santiago, Old Pecos Bull dances at Jemez pueblo, New Mexico.
- Aug. 2-5—Sanpitch Pow Wow and County fair, Manti, Utah.
- Aug. 4—Summer Corn dance and feast day, Santo Domingo pueblo, New Mexico.
- Aug. 4-6—Twelfth annual Cowboys Reunion, Las Vegas, New Mexico.
- Aug. 5-6—Annual Smoki Snake dance and Indian ceremonials, Prescott, Arizona.
- Aug. 10—Corn dance and feast day at Picuris pueblo (San Lorenzo); Corn dances at Laguna and Acoma pueblos; Corn dance at Nambe pueblo, New Mexico.
- Aug. 10-13—29th annual Inter-Tribal Indian Ceremonial, Gallup, New Mexico.
- Aug. 11-12—Millard County fair and Days of the Old West, Deseret, Utah.
- Aug. 11-12—Annual Silver Jubilee, Eureka, Utah.
- Aug. 12—Celebration of Santa Clara day and Corn dance at Santa Clara pueblo, New Mexico.
- Aug. 15—Fiesta exhibition opens, State Art Museum, Santa Fe, New Mexico.
- Aug. 15—Civil Air Patrol Air show, Winslow, Arizona.
- Aug. 15—Feast day and Corn dance, Zia pueblo, New Mexico.
- Aug. 17-19—Cache County fair, Logan, Utah.
- Aug. 17-30—Western Navajo Arts and Crafts, second annual exhibition, Museum of Northern Arizona, Flagstaff.
- Aug. 18-20—National Championship High School Rodeo, Santa Rosa, New Mexico.
- Aug. 18-20—Sheriff's Posse Rodeo, Tucumcari, New Mexico.
- Aug. 18-20—Annual Tesuque Valley Horse show, Santa Fe, New Mexico.
- Aug. 19-20—Pinto Bean festival and Rodeo, Mountainair, New Mexico.
- Aug. 23-26—Salt Lake County fair, Murray, Utah.
- Aug. 24-26—Summit County fair, Coalville, Utah.
- Aug. 25-26—Davis County fair, Farmington, Utah.
- Aug. 25-27—Nevada Horse Shows association, Reno, Nevada.
- Aug. 28—St. Augustine's feast day and dance at Isleta pueblo, New Mexico.
- Aug. 28-31—Renewal of Galena Days celebration, with parade, mining contests. Bingham, Utah.
- Aug. 31-Sept. 2—Box Elder County fair, Tremonton, Utah.
- August—Special exhibit of rare old Indian baskets, Southwest Museum, Highland Park, Los Angeles.



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AUGUST, 1950

Number 10

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NAVAJO WOMAN. Photo by Don Ollis Santa Barbara, California. First prize picture in 1949 cover contest.

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When the Hopis Dance for Rain



Chief Joe Se-kak-u-ku, high priest of the Hopi Snake clan.

Early in August the priests of the Snake and Antelope clans in the Hopi pueblos in northern Arizona will gather in one of their ceremonial kivas and set the dates for their annual Snake dances. Sixteen days later visitors to the Hopi mesas will witness one of the most amazing religious ceremonials held in the world. Three dances are to be held this year—and here is a story that tells both the details and the significance of these strange rituals.

By MYRTLE MAE SIMER

Photographs courtesy of the Author, Walter Olds and Dr. A. F. Switzer. The pictures were taken at Walpi in 1911, before the Hopis put a ban on cameras at their rituals.

ONCE AGAIN the tom-tom-tom of the Hopi tribal drums will beat out the legendary and immemorial prayers to the gods of the rain clouds when the world-famed Hopi

Snake dances are held at the pueblos of Shipaulovi, Shungopovi and Hotevilla in northern Arizona late in August this year.

The ceremony is performed by mem-

bers of the Snake and Antelope clans and the exact date is set 16 days before the dance occurs, when it is formally announced. The preceding night the chiefs gather and engage in ceremonial smoking and commission the town crier to call out the date on the following sunrise. The message usually is brought to Winslow by one of the members of the tribe who travels by truck to this city for supplies. Thus the news is released to the press and broadcast by radio throughout the United States. Scientists, educators, scholars, writers, artists, designers, Indian cowboys, native Arizonans and interested visitors from every state in the union respond to this announcement by travelling the unpaved highways to reach and witness this religious ceremonial.

In Hopiland there are nine principal towns, three each on three mesas. On the first mesa are Walpi, Sichomovi and Tewa (commonly called Hano). Atop the second mesa are Mishongnovi, Shipaulovi and Shungopovi. On the third or westerly mesa are Oraibi, Old Oraibi (the oldest continuously inhabited village in the United States), Bakabi and Hotevilla. In even years the dances are held at Shipaulovi, Shungopovi and Hotevilla. In odd years at Mishongnovi and Walpi. In the olden days the Hopis built such towns on high mesas as protection against their enemies and there they still live content with their lot. Often they come down from their villages to make their way in the world of the white man at Winslow, Flagstaff, Holbrook and Gallup, New Mexico, but sooner or later they return to their native land. Although some have died in a modern hospital in one of these cities, always the body is returned to the reservation for final rites.

Leadership comes through clans and clan membership and kinship is inherited through the maternal side of the family. Clan affinity is stronger than all other ties with the Hopi. The Snake and Antelope chiefs receive their commissions through inheritance and those chosen to honor and represent their villages at the present time are: **WALPI:** Steven Ya-ee, Snake chief, and Luke Ho-vay-lo, Antelope chief. **MISHONGNOVI:** Loma-naqsur, Snake chief, and Sing-yaw-ma, Antelope chief. **SHIPAULOVI:** Joe Se-kak-u-ku, Snake chief, and Ned Loma-yes-tewa, Antelope chief. **SHUNGOPOVI:** Wadsworth Nu-va-quoi-tewa, Snake chief, and Louis Tu-wa-ni-ma, Antelope chief. **HOTE-**

DESERT MAGAZINE

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VILLA: Lester Kwa-nimp-tewa, Snake chief, and George Na-si-wi-sia-ma, Antelope chief. The ages of these chiefs vary, with Steven Ya-ee and Lester Kwa-nimp-tewa being the youngest at 57 and Loma-naq-sur the oldest at 80.

One of the leading attractions of the dance at Shipaulovi will be the appearance of five-year-old Howard Dennis, Hopi son of Mr. and Mrs. Chester Dennis of Winslow and Shipaulovi. Although Dennis is his adopted American name, his Hopi appellation is Loma-be-va, meaning Good Smoking Tobacco. Young Dennis' father is a member of the Tobacco clan, so Lillie Dennis gave her son a name from his father's clan. On previous occasions boys 8 or 10 years of age have participated in the ceremonies, but Howard is considered the youngest child yet to take an active part. He is a nephew of Chief Joe Se-kak-u-ku.

Chief Joe, as he is generally known, spends much time in Winslow operating an Indian curio store on Highway 66 across from Hotel La Posada. A member of the influential Bear clan, he was born 60 years ago at Shipaulovi and was selected by his uncle, Frank Ma-saw-quip-tewa, in 1944 to succeed him as Snake chief in order that the tradition of the Hopi might be upheld. Joe is known in every city in Arizona and in many parts of the United States. With his young nephew, he will leave Winslow early in August for the Hopi reservation to prepare for the sacred ceremonies.

The Hopis are an intelligent, industrious people living in almost a perfect society. Theft, crime and the evil ways of living were almost unknown to them until the influence of the white man was felt. They are a very independent tribe and this spirit of self-reliance was especially noted when the leaders expressed disapproval of the Navajo-Hopi aid bill which was recently passed by congress. They are known as the peaceful ones and their occupation is the tilling of the soil. Their achievements in arts and crafts are symbolized by exquisite pottery, the carving and painting of the Kachina doll, cotton weaving, rug weaving and basketry. Their religious ceremonies are of two types: those taking place in public, usually dances, and those held in the underground ceremonial rooms called kivas. The second consist of the acting out of dramas based on legends and supplemented with

Pictures showing the "carrier" who holds the snake in his mouth, and the "hugger" who uses a bunch of feathers to distract the attention of the reptile.



elaborate ritualistic observances. Their religion is expressed in their dances.

The duration of the Snake dance actually is a 20-day period, of which only nine are marked by active ceremonies. This 20-day proceeding is divided into five groups of four days each, namely: eight inactive days; four days from the erection of the Antelope altar to the making of the Snake altar; four days from the erection of the Snake altar to the Snake dance; and four days of frolic and feasting (*nuiti-wa*). The impressive features of the rite are the making of the sand altar, the gathering of the snakes from world-quarters, the snake drama, the snake washing, and the races by the Snake and Antelope societies. An abbreviated day-by-day account of the nine-day ceremony (*pa-mu-ya*), which precedes the public dance follows:

FIRST DAY: The important activities of this day are devoted to the mixing of the sacred meal, which is used during the ceremony, and the construction of the sand-painting altar in the Antelope kiva.

SECOND DAY: This day is devoted to the making and dedicating of prayer-sticks, which are made of willow branches, carved, painted and adorned with feathers. Prayer-sticks are the conveyors of prayers to the rain gods and they vary in size and type and are dedicated by the singing of 16 songs (although some Hopis claim the number of songs is 17) by the Antelope society gathered about the sand-painting. Such a dedication ceremony is conducted each day, with

the exception of the eighth and ninth days.

THIRD DAY: On this day the snake hunt starts. At daybreak members of the Snake society assemble in their kiva to paint and prepare themselves for the hunt which gets underway in the north quarter. The entire day is spent hunting and capturing snakes and each one caught is sprinkled with sacred meal and placed in a bag called *tcu-mog-tu-pu* which each Snake member carries. Upon returning from the hunt to their kiva, the snakes are placed in four large earthen jars.

FOURTH DAY: The Snake Priests conduct their hunt in the west quarter on this day. The priests in the Antelope kiva hold rites consisting of ceremonial pipe smoking and prayers. To a Hopi, pipe smoking is a form of prayer and the smoke, as it passes from his mouth onto the trays of prayer offerings, carries to the gods the message of his sincerity.

FIFTH DAY: The Snake hunt is continued, with the Snake priests gathering the reptiles in the south.

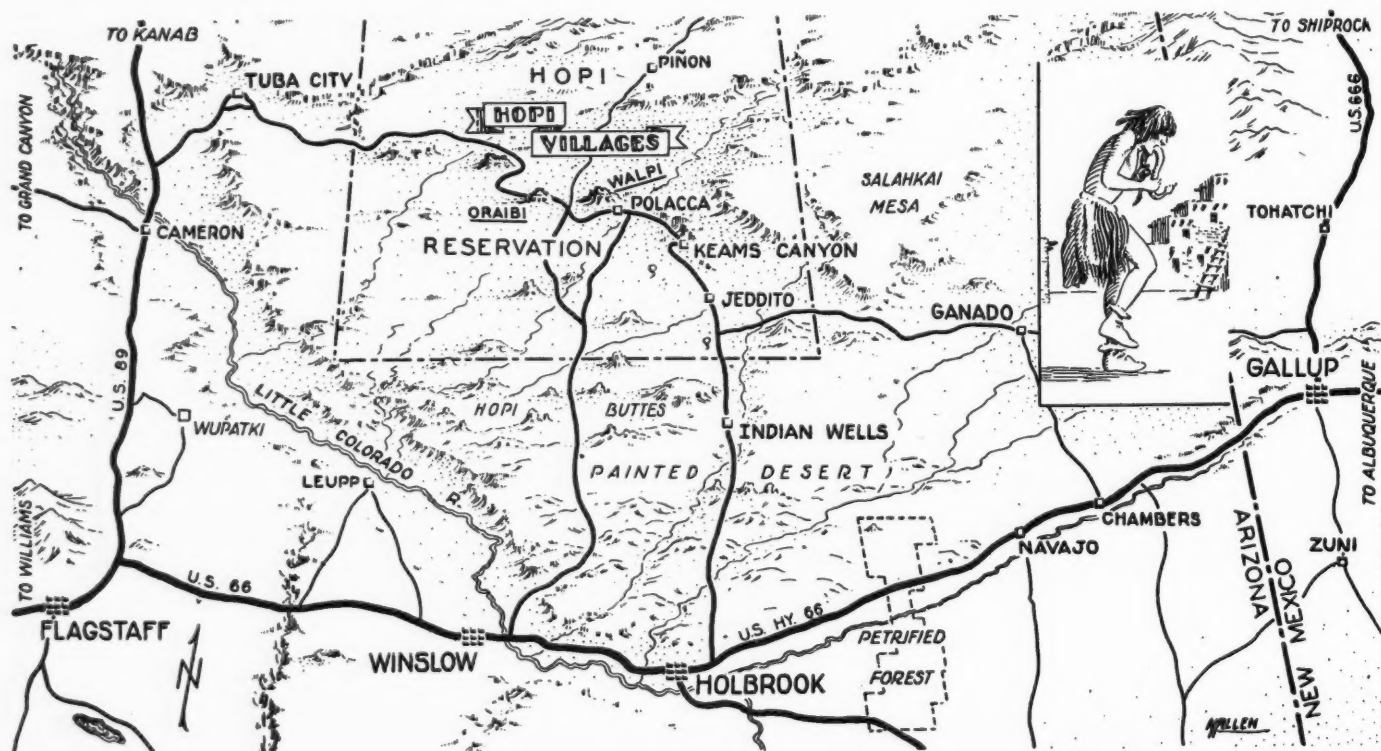
SIXTH DAY: At this time the snakes are secured from the east. The dramatization of the legend of the Snake Maiden and Snake Youth takes place at the close of the day's activities. This same legend is dramatized again on the seventh and eighth days in normal fashion, but on the ninth day it is conducted more elaborately.

SEVENTH DAY: At dawn at all second mesa villages (Shipaulovi, Shungopovi and Mishongnovi) the *na-tse*,

which is made of red dyed horsehair, three feathers, and to which is attached a bow and arrow, is tied on the ladder which leads to the Snake kiva, which is a symbol that sacred rites are being performed. A similar *na-tse* is also tied on the ladder which is erected at the hatch of the Antelope kiva. Both are removed by members of the Snake and Antelope societies as they file from their kivas into the plaza, and are carried during the dance. Also, on this day the sand-painting altar is constructed in the Snake kiva and the sacred liquid, used to charm the reptiles and for the washing ceremony, is prepared.

EIGHTH DAY: At sunrise a foot race is held by the Antelope society, in which all male members of the village are invited to participate. The Snake Priests spend their time manufacturing prayer-sticks in their kiva. Later in the day the *kisi* of cedar boughs is constructed in the plaza of the village and about sundown the first public ceremony takes place—the Antelope dance.

NINTH DAY: A foot race is held at dawn on this day of conclusion by the Snake society and this too is open to all male members of the village. Considerable part of this day is consumed by both societies in preparing their costumes and painting their bodies for the ceremonies to be held later in the day. About three hours before the Snake dance, the washing of the snakes takes place in the Snake kiva and the secrets of this part of the



ceremony have been guarded as closely as the hydrogen bomb. A number of Anglo-Americans claim to have witnessed this rite. When I questioned one of the Hopi chiefs about this, his answer in well spoken English, was:

"It could have happened 40 or 50 years ago, but to my knowledge no white man has witnessed this particular part of our ceremony since about 1910 and it would be absolutely impossible today."

The final ritual of the ceremony takes place before sundown or any time after four o'clock on the date set for the Snake dance. The Antelope celebrants file from their kiva, chins painted black with a white line drawn across the mouth and extending on either side of the face. Attired in traditional costumes consisting of headdress, necklace, bandolier, anklets, kilts, antelope-skin rattles and armlets, they march to the plaza about which they circle four times, each stamping on a plank in the ground in notification to the beings of the underworld that the ceremony is to begin. They then form in one line in front of the shelter of cedar boughs and sound their rattles.

The Snake society participants, adorned with feathers in their hair and feathered objects on the back of the head, shell, turquoise and silver necklaces, armlets and wristlets, kilts with zig-zag figures of the plumed snake, fox-skin pendants from their loins, bodies completely blackened with pigment from black corn, forearms painted rusty color, and a tortoise shell rattle bound to the knee (only at Walpi will one see the Snake dancers with white paint on their chins) follow in the same order and form in line facing the Antelope Priests.

A low chant begins, gradually intensifying in volume. The two lines of celebrants sway their bodies in rhythm with the music, the motion increasing with the chant until the movement reaches a dance-like leap. The Snake dancers form in groups of three, called the "carrier," the "hugger or charmer," and the "gatherer," and dance with a hopping step until they arrive before the kisi where the snakes and snake passer are concealed.

The carrier drops to his knees and receives a snake, grasps it by the middle in his mouth, allowing both ends to squirm, and rising, dances four times around the plaza, when he drops the snake, which is picked up by the gatherer. The carrier then returns to the kisi, obtains another snake, and goes through the same procedure until the four directions have been covered. The huggers, with their left arms around the carrier's neck, dis-



Howard Dennis, 5-year-old Hopi boy who plans to take part in the Snake dance this year.

tract the attention of the snakes by brushing their feather snake whips before the heads of the serpents. Occasionally a snake wriggles free and falls to the plaza where he attempts to escape. It is the duty of the gatherer to recapture the reptile.

While the dance is progressing a group of women and maidens stand at one side of the plaza and sprinkle the snakes with sacred cornmeal from their baskets as the dancers pass them. All during this performance the Antelope clansmen remain in position, singing and shaking their rattles. When all the snakes have been carried, the participants pause while a "six-direction picture ring" in sacred cornmeal is drawn on the ground.

At a given signal all of the snakes are cast into the ring. Another signal is given and the women cast into the seething mass of snakes the cornmeal remaining in their baskets, whereupon

all the Snake Priests rush up to the ring, grasp as many snakes as they can hold in both hands and rush down the rocky trail of the mesa to release the reptiles at various points below the pueblo. The Snake dance legend recounts that the children of the union of the Snake hero and the Snake maiden were transformed into snakes. Hence, snakes are regarded by the Hopi as their elder brother and are thought to be powerful in compelling the nature gods to bring rain, and it is for this purpose that they are set free at the close of the ceremony.

Returning to the kiva, the priests remove their dance toggery, after which they proceed to the side of the mesa and bathe and are given an emetic drink, made from herbs by the women, thus undergoing a thorough purification. This ritual being completed, they retire to the kiva where the ceremony closes with fun-making and feasting.

Two species of rattlesnakes, and the bull, blue racer and the whip snakes are carried in the dance. Nothing is done to the snakes which are venomous, either to remove their poisonous fangs or reduce their activity. The Snake Priests are rarely bitten, a fact due probably to careful handling and the herding to which the snakes have been subjected between the time they are gathered and the dance.

Those who travel to the Hopi mesas with their cameras ready for whatever pictures they chance upon, will find no difficulty in taking pictures of countless Indian subjects throughout the vast country. The Indian is becoming accustomed to photo seekers and many have attained professional perfection in posing. Usually, a request for an Indian to pose for a picture is met with a smile and a counter-request for a sum of money. However, you may meet some who would not consent to have their pictures taken for any amount.

But the Hopis do not allow pictures to be taken at their dances. One should not even have his camera with him at the dances held in the villages for the Indians become angered at what they consider commercializing and profaning of their religious ceremonies. To avoid an unpleasant experience leave the camera in your car. Sketching and painting likewise are prohibited and special deputies are named by the government agency to see that this ban, which went into effect about the year 1914, is enforced.

One of the tribal leaders, expressing the attitude of his tribesmen toward the people who attend the dance, summed it up this way:

"I am sure that after they have

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Close-up of Walpi pueblo.

witnessed the Snake dance, they will claim it to be one of the most unforgettable revelations they have experienced and, no doubt, difficult to believe that they could travel such a short distance from modern living into an ancient Indian village where such ancient religious customs are still practiced. To this ceremony, which is our religion and the religion of our ancestors, my people have always welcomed visitors and our only request, when attending, is that you respect it as a religion.

"Many people cannot understand," he went on solemnly, "why we will not allow pictures to be taken during our ceremonies. Perhaps they could understand our feelings better if they answered my question:

"Just how would they feel if hundreds of Indians invaded their churches on a day of worship and attempted to take pictures of the clergymen delivering their sermons, the congregation in prayer or partaking of holy communion, and the choir singing hymns, and later put the results of their photographic efforts on the market for sale?"

HOW HOPIS MADE RAIN FOR NAVAJO TRIBESMEN

Drouth conditions on the Navajo Indian reservation this spring and summer recall an old Indian legend. It is told by Scott Preston, Navajo headman from Tuba City, Arizona.

Many years ago a long drouth drove the people away from their home ranges to seek water elsewhere. Some concentrated along rivers, but others moved in—uninvited—upon the Hopi pueblo of Moencopi. The Hopis became increasingly alarmed as more and more Navajo families appeared with their stock. They asked the Navajo to leave. They replied that they could not go back home until it rained — it would mean starvation. They pointed out that they would gladly return home and leave the Hopis in peace if the Hopis would make it rain.

Hopi leaders held a council. They decided to put on a ceremony, even though it was out of season. The ceremony was duly performed. It had hardly come to an end when the skies were darkened with rain clouds. The Indian country was drenched with

rain. Waterholes were filled and the range revived, so the Navajo tribesmen withdrew from Moencopi and returned to their homes.

• • •

DR. HERBERT E. BOLTON WINS BANCROFT PRIZE . . .

Dr. Herbert E. Bolton, professor of history at the University of California and author of books on early Southwest history, has been awarded one of the two 1950 Bancroft prizes for distinguished writings in American history. The other prize went to Lawrence H. Gipson, research professor of history at Lehigh university, Easton, Pennsylvania. The prizes carry stipends of \$2000 each.

Bolton was honored for his latest book, *Coronado*. He is particularly well known for his close study and writings on the exploration and colonizing expeditions of Capt. Juan Bautista de Anza. Anza's overland treks from Mexico to California in 1774 and 1776 resulted in establishment of San Francisco.

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Trails to Rockhound Rise . . .

By HAROLD O. WEIGHT

Photos by the Author

A GOOD ROCKHUNTER, willing to hike and prospect, seldom finishes the day empty-handed on the great lava-tongued bajada and in the colorful washes of the Bullion mountain country northwest of Twentynine Palms, California. This is true despite the fact that hundreds of collectors have combed the area since field trips in this area were published in *Desert Magazine* in December, 1938 and January, 1940. Fine specimens have been overlooked, new ones weather out—and the collecting region is so large that there is always the possibility of finding a spot that has been overlooked.

We hit just such a neglected spot on our first post-war trip to the Bullions. Most of the rocks in the familiar areas — the beautiful little geodes, the fortification agate, jaspers

When adventuresome rockhounds start out on an exploring trip, they don't always find the desert trail or the collecting area they are looking for—but sometimes they discover exciting new country and maybe an entirely new field. That's what happened to the Harold Weights in their search for a back-door route to a remote region in the country northwest of Twentynine Palms, California. Eventually they were able to map the route—but they still face the job of relocating a good blue agate area they once visited.

and carnelian—either weather from tongues of dark lava which lick out in a hundred places from the bases of the Bullions, or are found in the mountains themselves. But this collecting

area is a large low sandy rise—Rockhound Rise we call it—just northeast of Pinto Mountain. And judging from the quantity and variety of rocks scattered over its slopes, it must represent erosional gleanings from many sections of the Bullions.

Rockhound Rise is but 25 miles from Twentynine Palms as the crow flies. But unfortunately, rockhounds are not crows—and those who would visit this area must make a choice between two roads, one of which is too sandy for any vehicle not having a four-wheel drive, and the other is rather circuitous.

The sandy route, as shown on the accompanying map, leads out past Mesquite dry lake and across the northern end of Deadman dry lake. There was a military air field here during the war and the road is paved as far as the camp. Beyond that point the trail is too heavy for an ordinary car.

We are indebted to our friend Dick

On the low sandy rise (right center) is collecting area described in this month's field trip. Pinto Mountain in the background. Many agates and geodes have been collected from bajada in foreground. Jet plane vapor trails add to beauty of the desert back of Twentynine Palms.



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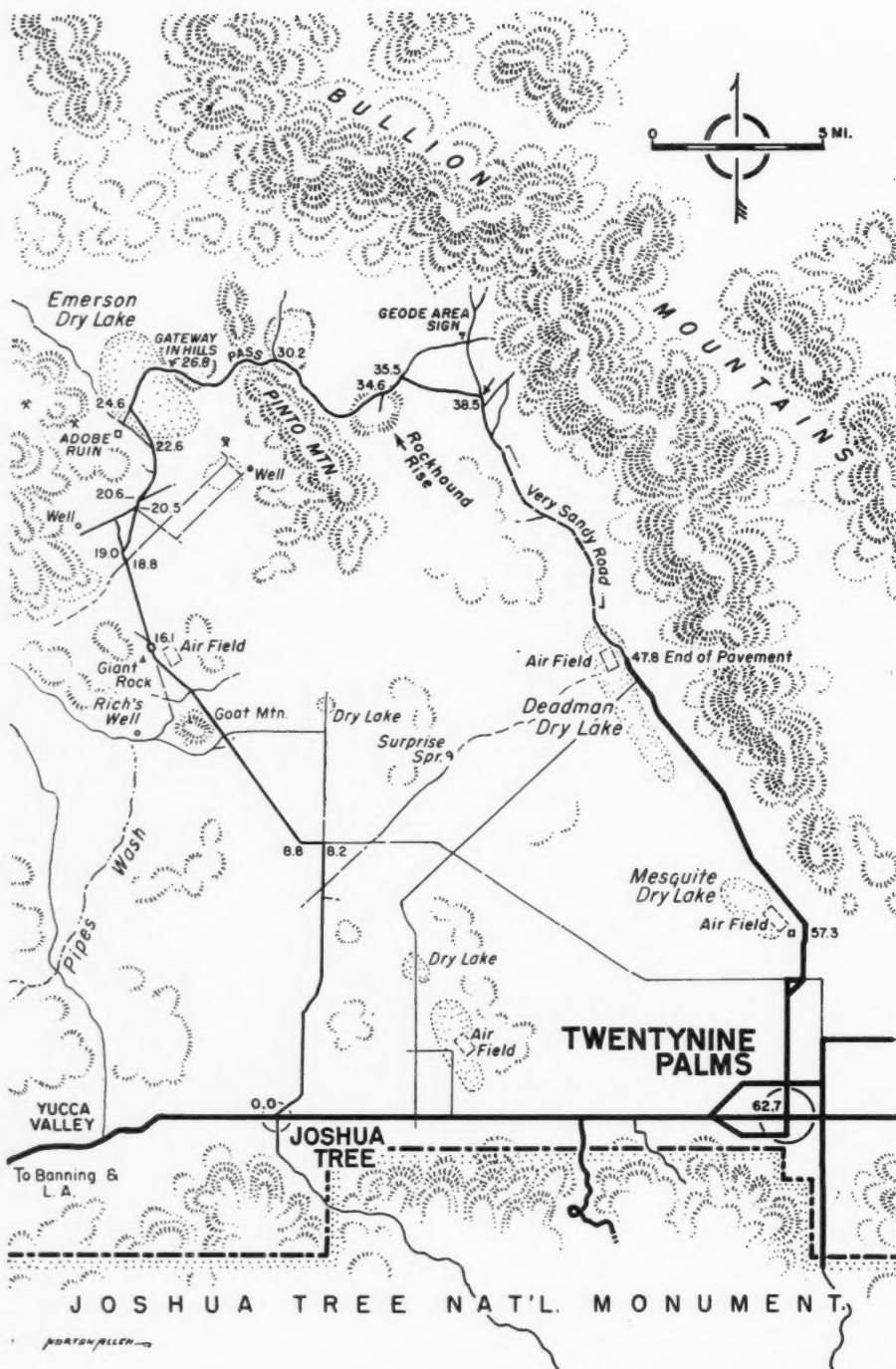
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Davis for showing us the other route into the collecting area—a route that is rough, but feasible for the average car.

Dick, besides being local agent for the maps of the U. S. Geological Survey, the Army Map Service and the Coast and Geodetic Survey, is something of a pioneer at Twentynine Palms. He first came to the area in 1929, and camped all over the valley. By the spring of 1930 he had picked his spot and was homesteading a mile northeast of the present Twentynine Palms airport, living there in a tent for three years. Ignoring what others might have considered physical handicaps, he proceeded to nose into the

Bullion back country and surrounding desert in a series of air-cooled Franklins.

Dick still believes in the Franklins for desert travel, and operates a big old seven-passenger model which he has festooned with gadgets, including water-injection for the carburetor and a war-surplus Sperry turn-indicator and gyro-compass. The advantage of the Franklin for desert traveling—besides large wheels and comparatively low gearing—is the air-cooled motor which requires no water.

"Of course they get so hot we call them waffle-irons, and you could cook breakfast on them in no time," Dick admits. "But they keep running."

ROAD LOG

- 00.0 Leave highway at Joshua Tree and head north, following Giant Rock Airport signs.
- 08.2 Crossroad. Turn left.
- 08.8 Follow main road right at Y.
- 16.1 Giant Rock Airport. Keep to the right (Northwest) when leaving Giant Rock.
- 18.8 Crossroad. Continue Northwest—straight ahead.
- 19.0 Road Y. Turn right—North.
- 20.5 Crossroads. Keep going ahead—North—on main traveled road.
- 20.6 Road Y. Keep left.
- 22.6 Road Y. Keep right. Left branch goes to old adobe ruin at mill site.
- 24.6 Claim stakes and General Land Office marker in Emerson dry lake. Turn at right angles at marker and head for gap in dark hills to the Northeast. (Do not attempt to cross lake in wet weather.)
- 26.8 Pass through gap between hills and head East, following road to edge of dry lake, then Northeast up bajada and through pass to the Northwest of Pinto Mountain.
- 30.2 Road Y at edge of small dry lake. Keep right, following general line of northeast base of Pinto mountain.
- 34.6 Old ruts, right, leading onto hill. Collecting rocks may be found among alluvial deposits scattered on all slopes of the low, sandy hill.

NOTE: Field trip areas described in Desert Magazine, December, 1938, and January, 1940, may be reached from this point by following road on East, keeping to right at Y at 35.5 miles, and turning north at Y at 38.5 miles. Return trip via Deadman and Mesquite dry lakes to Twentynine Palms is possible when the sand washes are packed.

Even with Dick's help, it required several expeditions and a number of false starts before we found the back door to Rockhound Rise—and we cannot recommend it in wet weather. By this route we left the Twentynine Palms highway at the booming community of Joshua Tree, turning north at the Giant Rock airport sign and following the airport direction markers to Giant Rock itself, 16.1 miles from Joshua Tree.

We stopped briefly at Giant Rock, and visited the big room hollowed out under it. The Van Tassels are living at the airport now, and maintain a little refreshment stand there. Two daughters of the family travel 64 miles a day to attend high school in Twentynine Palms, driving half of it themselves in a big army truck. A third daughter attends school in Joshua Tree, a 32-mile round trip.

We took the right-hand road northwest from Giant Rock. Crossroads, divisions and Y's multiplied. Fortunately Dick recognized most of them.

We would come to a crossroad and he would say: "Well, I think that to the left goes to the Lost Padre mine. Better take the right." Or: "If we go that way we'll end up in Lucerne Valley."

Even with his usually correct judgment, it became an increasing confusion for Lucile. Sliding and swaying in the bouncing truck, she was trying to keep track of each turn and crossing and compass direction, and the various mileages. Dick shook his head about the mileages. "No matter how careful you are, any person following your log will have a different mileage after spinning and bouncing along 20 miles of desert road. Even the thickness of the rubber on your tires will make a difference!"

Twenty-four miles from Joshua Tree we came out on the huge flat playa which is Emerson dry lake. Dick had trouble recognizing his surroundings, even after we visited the old adobe ruin on the southwest shore of the lake and climbed to the foundations of what had once been a stamp mill.

"The mill and all the buildings were standing when I was here last, 20 years ago," he explained, "and it certainly made a difference."

From the hillside the whole vast expanse of Emerson Lake was visible. Our route led northwest directly across it and through the gap in the dark hills on the far side.

Emerson is a very big dry lake and this route across it is not recommended in wet weather. But when we crossed it in May, its dry surface made a good roadbed. Once through the gap between the dark hills we headed east—still on the dry lake. Reaching its edge, the road swung back up the slope



Top—The "back-door" route to the rock and geode fields of the Bullions leads across Emerson dry lake and through the gap between dark hills (center) then right through a pass at northwest end of Pinto Mountain. Foundations of old gold mill in left foreground.

*Center — Strange parasite plants of the desert, the *Pholisma arenarium* or scaly stemmed sand plant, found near Surprise Spring. Relative of the *Ammobroma sonora*, a food of the Papago Indians, *Pholisma* also reportedly was eaten by Indians of Southern California.*

*Bottom—This usually meteoric lizard—the *Gambelia wislizenii* or leopard—apparently was enjoying a lazy May siesta on the desert hillside and even permitted his portrait to be taken before he scampered for the bushes.*



When Giant Rock (in top photo) appeared on the skyline the rock collectors knew they were near end of the circuit from Twentynine Palms and were back to well-traveled desert roads near Giant Rock airport.

Dick Davis, long-time Twentynine Palms resident, standing beside his old air-cooled Franklin with which he has explored much of the desert back-country.

toward a pass northeast of Pinto Mountain. The road through the pass was rough and a little twisty, but Dick assured us that he could maneuver his Franklin through it without trouble, so we considered it safe for mapping.

Through the little pass, the road dropped rapidly and came out on a small playa. Here it branched and we headed right — southeast — close to Pinto Mountain. And at a little more than 34 miles from Joshua Tree, we reached the edge of Rockhound Rise.

In the variety of material we found were a sort of brecciated red moss, black moss, maroon and gold-mottled jasper, gold and honey moss. Other samples included tiny shapes of pale gold and flesh tones in a chalcedony matrix, a white agate bordered with banded maroon, sard and a small piece of flower agate.

The prizes of Rockhound Rise, so far as I am concerned, are two pieces of green moss in clear chalcedony—one of them containing flecks of red which make it a sort of moss blood-stone.

Rockhunters who wish to do a little collecting in the geode area will have no trouble reaching it from Rockhound Rise. Not far east of the rise, the road branches. The left-hand branch wanders over the lava tongues of the bajada and eventually comes out at the geode area sign. There is interesting hunting area all along it and, except for one bad twisty bit up onto one of the lava tongues, it is a fairly good road. The right branch can be followed down to the point where it joins the Mesquite Lake-geode area road, where a sharp left turn and an easy run back up the bajada will bring you to the geode area sign from the south.

There is good material still to be found. In fact, it was the search for one particular tongue of lava on that bajada which brought us to Rockhound Rise. Not long before the war I had located some beautiful blue and white fortification agate on that lava tongue, and I wanted to relocate the spot.

But now there were half a hundred new trails and the old ones had been washed away. By late afternoon I had to admit that I had no idea where my blue agate area was hidden. Nor have I discovered it in two trips since then. But I'm going to try again. It's very pretty stuff.

On Rockhound Rise we came upon the first leopard lizard — *Gambelia wislizenii*—who seemed willing to pose for a portrait without being put under restraint. Maybe it was the hot weather, but he permitted two shots before he streaked for the bushes.

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Dick Davis and Lucile examine specimens picked up from the slopes of Rockhound Rise. Geode Butte, landmark for an earlier Desert Magazine field trip, is the white outcrop in the Bullion Mountains, right foreground.

we stumbled onto our first specimens of *Pholisma arenarium*, a root-parasite relative of *Ammobroma sonora*. *Ammobroma*, found in the sand hills west of Yuma and around the head of the Gulf of California, was a favorite food of the Papagos and *Pholisma* reportedly was eaten by Southern California aborigines. Six to ten inches high with its odd club-shaped head covered with many scores of tiny purplish, white-rimmed blossoms, it looks like a Disney Technicolor version of a fairyland toadstool.

Besides these special treats, we passed through miles of profusely blooming flowers, a display we cannot hope to see again for many years. Thousands of desert lilies already had bloomed and matured, as had most of the verbena and dune evening primrose. But their associates—geraea, pincushion, phacelias, baileya, apricot mallow—still flowered. As we climbed above 2000 feet, the dwarf creosote, burroweed and galleta were interspersed with ephedra, golden-flowered cassia bush, and purple and violet-flowered dyeweed and indigo bush.

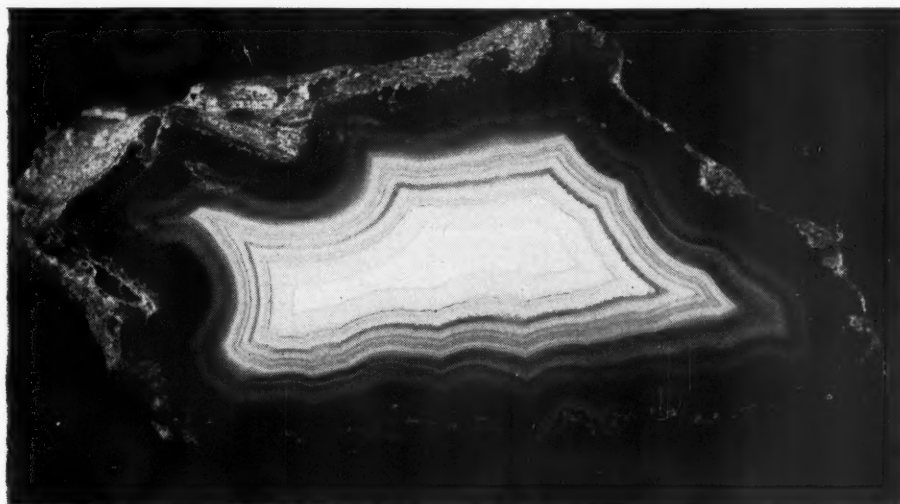
Higher still, the Mojave yucca often dominated the landscape, its clusters of heavy date-shaped fruits indicating an unusual early blooming. At this elevation we found the greatest pro-

fusion of flowers. Yellow tackstem, desert dandelion, gleaming-white rafinesquia, bladderpod and krameria were common. But most numerous were the blossoms of the lavender Desert Gilia—whose botanical name means “lonely desert dweller”—and the dainty little spotted Gilia. And among the yuccas we found the sky-blue flowers of the beautiful Mojave sage.

Oddities and beauties to see, the

glory of the flowers, the wonders of plants and animals and mountains and sky—these things make our desert trips successful, even when rocks and routes elude us. No desert road is dull—no trip a waste of time—unless you think it so. But we are glad when at last we find a field with sufficient rocks and good enough road to justify a field trip, so that we can tell our friends—known and unknown—about it.

Beautiful blue and white fortification agate (enlarged) from a lava tongue at the base of the Bullion Mountains, northwest of Twentynine Palms.





Waterhole in Death Valley near Bennett's Well. Photo by D. C. Morgenson

Desert Waterhole

By HOSSHU HARRY
Los Angeles, California

Think you, I'm just a hole in the desert floor
Filled with brackish water, nothing more,
Circled with whitish crust of alkali
To which critters come to drink, then die?

Believe you this, then you be the fool.
Those who know, see me as a jewel
That sparkles in the desert sand.
Giving life and hope to beast and man.

Freely I give of myself to all who come,
Stung by the strength of the desert sun.
So, you see I have both heart and soul.
Though I'm merely a humble waterhole.

SUNSET AT MESA VERDE

By ELSIE CONOVER
Sutter, Illinois

Far across the canyon, above the Sleeping
Ute, the sun was setting;
On that great rim of rock we stood together
You and I, and watched it as it slipped
Behind the mountains; and the purple mist
Drew over mesa, plain, and canyon.
Wrapping all in stillness, peace, and beauty
unbelievable.

WEE HOUSE

By GRACE S. BELL
Thousand Palms, California

I own a crooked little house
That boasts no flowers, nor fountain,
But guarding my wee house instead,
A purple, snow-crowned mountain.

The breeze is now my symphony,
A horned toad is my pet;
Red roses may be what I want,
But sand is what I get!

Glories to Come

By TANYA SOUTH
Man cannot see nor comprehend
The glories that are still to come.
The greatest fail to understand
That vast, eternal, final sum
And substance of our evolution!
We seek, we question and we knock
To find the wisdom and solution
Of Life and Truth, which queries
mock.

And how can it be otherwise?—
Since tiny vessels cannot hold
What has been meant for larger size;
Nor can man all the Truth enfold.

THE SMOKE TREE

By AMY VIAU
Santa Ana, California

It is the desert's masterpiece—
An etching from its heart.
Like a thousand strands of clean, white
smoke
Is its beauteous branching part.

THE FOUR WINDS

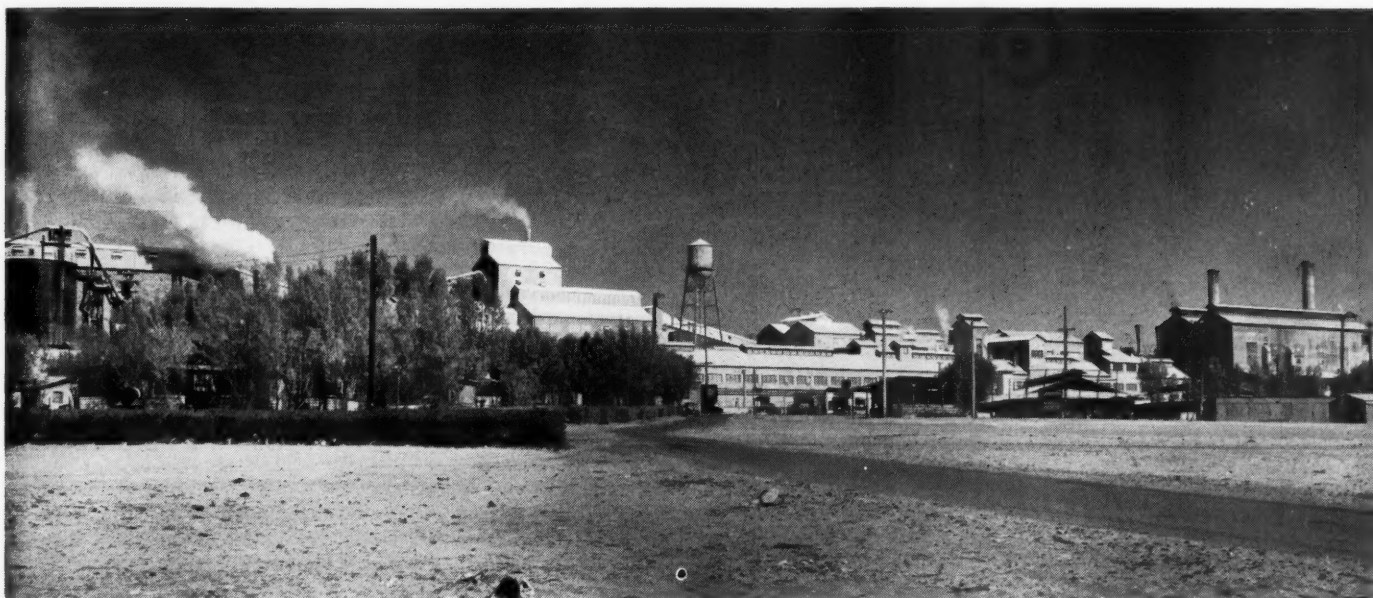
By PATRICIA NAVIS
Caldwell, Idaho

Timid and sweet is the South wind,
Fragrance blooms in her hair,
She croons a rocking lullaby,
As lovely as a prayer.

Glistening in frosty diamonds,
Regal and un-afraid,
The North wind, blessed with a beauty
Not for woman or maid.

Sultry and moody, the East wind,
Changing her garb in vain,
No sun light ever around her,
A breath that's filled with rain.

Thunderheads loom in the darkness,
Wonderful at its best,
Creator of flashing splendor,
Awesome wind from the West.



Brine from far below the surface of California's Searles Lake is piped in a continuous flow 24 hours a day to this multi-million-dollar plant where by evaporation and fractional crystallization pure chemicals are obtained. From 20 to 25 wells are pumping to supply the plant with 3 million gallons of brine per day.

Liquid Wealth from a Desert Dry Lake

By AL HAWORTH
Photos by George Sturtevant

JOHAN W. SEARLES—prospector, grizzly bear hunter and Indian fighter—was not the first white man to see California's Searles Lake. In the winter of 1849 the emaciated survivors of the Jayhawker band of gold-seekers topped bleak Slate Range to the east of Searles Lake and saw what appeared to their burning eyes to be a shimmering expanse of cool water.

Momentarily revived, they hurried as best they could down the rocky slopes. Their disappointment was keen. What they found was a vast expanse of nothing but salt—the lake was dry. A little weaker and even more thirsty, they struggled on across California's Mojave desert and eventually reached San Fernando Valley. Eager for gold and quick riches, they had turned their backs on one of the world's greatest deposits of mineral treasures, a fabulous stock pile of wealth stored up by Nature through the centuries and from which man may eventually take as much as \$2,000,000,000 in refined mineral products.

Today that mineral wealth is being

mined. Nature's treasures are being sucked up from 70 feet beneath the lake's dry surface and processed in a multi-million-dollar plant which supports a community of 3000 people who live in modern comfort summer and winter in what was once considered the most desolate part of the great Mojave desert.

This village of modern homes which boasts that it has more college graduates per capita than any other town in the nation, is Trona. Trona sits at the edge of Searles Lake in the northern part of the Mojave desert, about 165 miles northeast of Los Angeles. To the east is the somber Slate Range, to the west is the Argus Range. Almost due east—25 miles away over the Slate Range, across burning Panamint Valley and through the lower Panamint Range—lies the southern tip of Death Valley.

When I visited Trona in March there had been recent spring rains on the Mojave desert and the rocky hills around Randsburg, Johannesburg, Red Mountain and Atolia — all roaring mining camps producing gold, silver, lead and tungsten in the days before the vastly greater riches of Searles Lake had yet been discovered—were

The desert yields many treasures — both material and spiritual — to those who know where to look. Buried for thousands of years beneath the forbidding salt-caked surface of Searles Lake at upper end of California's Mojave desert, millions of dollars in rare minerals lay unnoticed by prospectors and miners. How this wealth was finally tapped and how the people who are "mining" it live in modern comfort on a once barren waste is told in the accompanying article.

carpeted with the green of myriads of desert plants and wildflowers and grasses. But in Searles Valley itself with its 12-mile-long lake bed there was hardly a weed or bush, except at Trona where men and women have built a huge industry and a thriving village.

This amazing town in which the art of desert living has been developed to a high degree of perfection was conceived, planned, built and is owned lock, stock and barrel by the American Potash and Chemical Corporation. A. P. & C. C. research engineers have through the years by trial and error developed what is called the Trona process. They take brine from deep beneath the dry surface of Searles Lake, run it through an intricate process of heating, cooling, condensing and fractional crystallization, and in 24



Plant Manager A. J. (Andy) Anderson at his neat desk.

hours undo what Nature took 20,000 years to accomplish.

What the huge plant with its \$25,-000,000 worth of baffling vacuum pans, hydrators, coolers, settling tanks, centrifugal separators and miles of pipes and conveyors does is to take from the concentrated lake brine the diversified crystalline salts which through the ages have been deposited there.

By the time the mother-liquor—brine as it comes from the lake—has completed its flow through the heaters and coolers and filters it has given up to man its values in potash, borax, soda ash, salt cake, lithium, bromine. The list of products in which these basic chemicals are utilized is virtually endless. They go into cleaners and detergents; into paper, printing inks and starch products; into explosives, glass, chinaware and enamel kitchenware; into glazed brick and tile, cement, adhesives, pigments, dyes and roofing granules; into textiles, leather, sugar, metals and fertilizers. Virtually every commercial mixed fertilizer uses potash.

Geologists say that Searles Lake is "the result of a long-time dessication of a series of fresh water lakes." The lake's drainage basin probably extended to the northern end of Owens Valley. Water flowed southward, fed by extensive glaciers covering the High Sierras. The deposit began to be formed, it is believed, during the late Tertiary period.

After the ice-age glaciers had disappeared Searles Lake was, some 20,000 years ago, one of a chain of lakes below Owens basin, a chain which extended as far inland as ancient Bonneville Lake, which has evaporated down to what is today Utah's Great Salt Lake. Overflow from the shallow Owens basin passed through mountain divides and valleys and overflowed into Searles Valley. Searles Valley was the deepest basin, it is estimated the lake was at one time 800 feet deep. Today its old water mark is clearly visible on the Slate and Argus ranges 600 feet above the present shore line of salt deposits.

It was because this inland lake had no outlet to the sea that it began to

store up potential treasures. The extensive saline deposits at the bottom of the lake were brought from miles away, leached out by water from the extensive drainage area east of the Sierra Nevada. They formed an immense mass of solid crystalline salts in concentrated brine.

After the climate had become warmer and the ice caps disappeared, still another change took place. Rain-fall in the area decreased, springs and streams dried up, forests on the surrounding hills died for want of water. The region became a desert. Then the hot desert sun began its work of evaporation. It is estimated this took about 200 years and that Searles Lake has been dry—on the surface—for from 4000 to 5000 years.

It was in 1862 that John W. Searles visited the region. Like others, he was seeking gold and silver in the adjacent mountains. But, unlike most of the others, he had read about trona—a white chemical double salt which chemists label $\text{Na}_2\text{CO}_3\text{NaHCO}_3 \cdot 2\text{H}_2\text{O}$. He concluded that the spongy reefs around edge of the lake were trona, a compound of neutral and acid sodium carbonate. But he, also, missed the real riches. What he did was to set up a small plant to reclaim a semi-refined grade of borax found on the surface. By 1874 he had organized the San Bernardino Borax Company and was hauling borax nearly 200 miles to Los Angeles in huge high-wheeled wagons and trailers pulled by 20-mule teams. He sold it for \$700 a ton. He sold out 12 years later to Francis Marion Smith and his Pacific Coast Borax Company, which made the 20-mule team a household trade mark. When richer deposits were found in Death Valley, Smith suspended his Searles Lake operations in 1895.

It wasn't until 1905-06 that another prospector, this time an engineer named Clinton E. Dolbear, became interested in the lake. He definitely established the fact that the lake contained trona, and this discovery led to exploratory work in 1912 that at last revealed the lake's true wealth. It was found that the most important commercial values did not lie on the surface—but were in the brine 60 to 70 feet down.

During this period it had been British money which had financed the sinking of wells and construction of a plant to extract the chemical values from the lake. More than \$7,000,000 had been poured into the venture—no profit had been taken out. British investors discovered they had the cheapest mining process in the world, but the most intricate and expensive refining process. The research, engi-

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neering and production experts had no precedents to go by, an entirely new process was required. In addition to the natural disadvantages of location and climate, there were countless technical set-backs.

In the meantime the American Trona Corporation had been formed and an experimental plant constructed in 1914. Later events proved this to be a fortunate move. Germany had been the chief source of domestic potash and Germany was at war. German potash was not available. After two years of feverish work, the first shipment of potash, an essential war material, was made in October of 1916—and a few months later this nation was in the World War.

Those were troublous times and the expensive venture on the desert was no exception. By 1919 the British investors were ready to quit. It was Dr. John E. Teeple, a chemical engineer with a new process and a persuasive manner, who went to London and talked the British into risking another quarter of a million dollars in the hope of saving what they already had poured into the Searles saline deposits.

The new process worked. The plant began to pay. And the British, probably glad to get out, sold to a Dutch syndicate for \$12,000,000. Everything appeared to be open and above-board and the Dutch owners left the British and American technicians and managers in complete charge of operations. Then the truth came out. The German potash cartel had put up the money to buy out the British investors, and the Dutch had merely been fronting for the Germans. Here the United States Alien Property Custodian stepped in. The company was reorganized. Distribution of its stock to some 4500 Americans—including 126 employees—made the firm 100 percent owned by U. S. citizens.

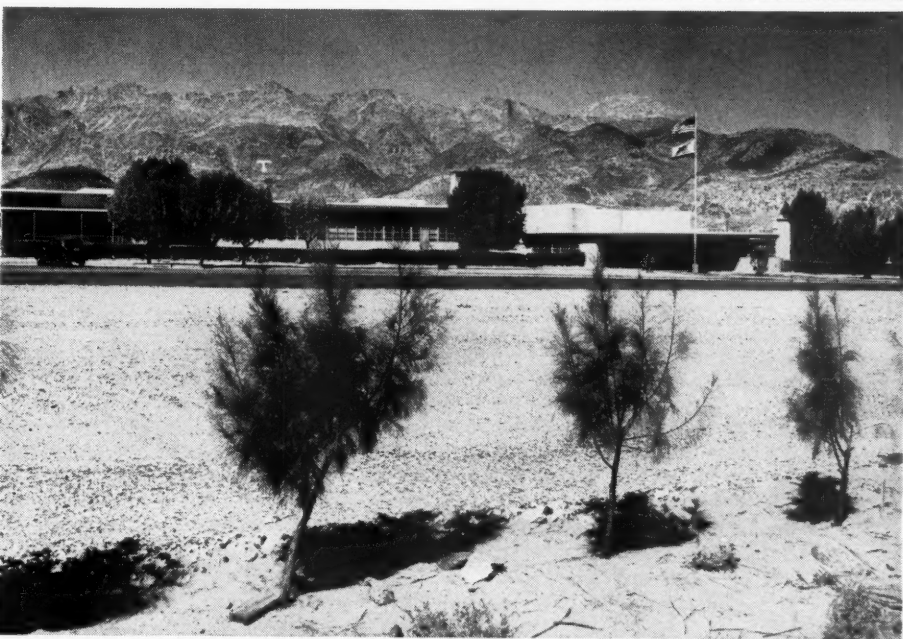
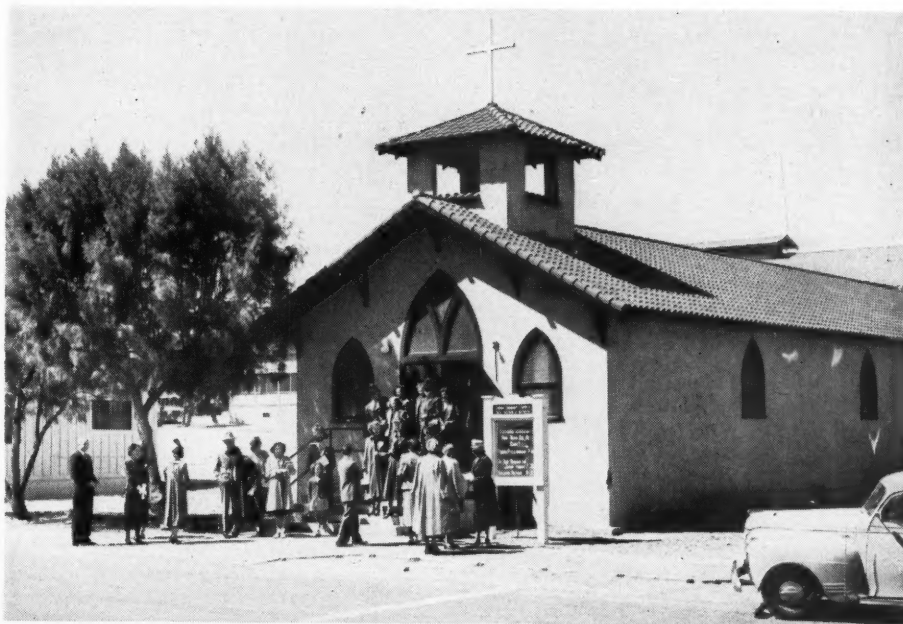
It became what it is today, the American Potash & Chemical Corporation. And little by little the amazing modern city on the desert evolved.

Today it is difficult to realize the hardships undergone by those who pioneered this industry on the desert. Today Tronans live full, interesting

Top—People of many denominations join for Sunday worship services in Trona's Community church.

Center—Justly proud of this modern school are the people who make their homes and raise their families in Trona.

Bottom — Varied activities are carried on in the recreation center—here the Gem and Mineral society has its clubrooms.



lives. Their activities move at a pleasant tempo in contrast to the rush and strain of metropolitan industrial centers. A few years ago keeping employes on the job was one of management's biggest problems, personnel turn-over was as high as 500 percent. Today it is down to 3 percent and less, recognized as a low figure even in more favorable surroundings.

How this change has been accom-

plished is the real story of Trona.

The story was revealed as I talked with A. J. (Andy) Anderson, plant manager; with George Baker, administrative assistant; with George Sturtevant, editor of the town's newspaper, the *Trona Argonaut*; and with plant employes and their wives. I talked with laborers, chemists, research engineers—and waitresses in the coffee shop.

Hard Rock Shorty OF DEATH VALLEY



Driving wind slammed shut the door of Inferno Store after the tourist who had slipped inside to escape momentarily from the fury of its blast. Turning to look out the window he could barely see his once-shiny new car parked not more than 10 feet away, and he shuddered as he thought of what the flying Death Valley sand was doing to the beautiful paint job.

Hard Rock Shorty, who had been snoozing in an old chair tipped back up against the counter, roused himself to greet the stranger.

"Whew," said the dude as he spat sand and dust from his mouth, "do you often have winds as hard as this?"

"Why, this ain't no real wind a'tall," Hard Rock assured him. "Yuh oughta be out here some time when we have an honest-to-gosh wind. It warn't more'n three months ago—just this past spring — when we had a blow that was worth talkin' about."

Shorty apparently considered the topic had been exhausted, but the visitor prodded him into further conversation.

"You mean it actually blows harder than this."

"Harder'n this?" echoed Hard Rock. "Why, man, me 'n Pishah Bill got caught out in a storm in May that I sorta hate tuh tell about. Afraid yuh might not b'lieve me.

"We wuz up in the canyon above Eight Ball Crick when she hit. We cud see the clouds o' sand comin' at us from off the desert below and knowed we'd be cut to ribbons in a jiffy. We wuz lookin' for a handy boulder

to git behind when we heared a roar behind us from up the canyon.

"We didn't need no one tuh tell us what that meant. There was a cloudburst up in the hills and a flash flood was a'boomin' down that gully. There ain't no human can stay in the path of one of them flash floods and live."

Hard Rock looked unconcernedly out at the swirling sand. The dude was impatient. "Well," he urged, "what happened?"

"Oh, nothin' much," answered Hard Rock, "except that there ain't no canyon there any more. The wind blowin' up from the desert and the water roarin' down the narrer canyon met exactly where we wuz a'standin'. They hit each other so hard they both bounced back about a foot and left me an' Pishah Bill standin' in a vacuum. Not a drop o' water or a grain o' sand touched us.

"There we wuz, with a wall o' sand buildin' up higher and higher on one side of us, and a solid wall o' water on the other. Bill had his prospector's pick with him, so he begun cuttin' steps in the packed sand. We clumb up the steps fast as we cud and just as we reached the ridge above the canyon the durn wind stopped as quick as she started.

"We wuzn't a second too soon. Them two walls of sand and water come together with a jar that was reported by the scientist fellers as an earthquake.

"Walk up there today and yuh won't find a sign of a canyon. She's full brim to brim with packed sand."

I learned that Tronans are proud of their village. They are particularly proud of their modern unified school, which educates their children from kindergarten through eight grades and four years of high school. The school has a faculty of 40. Scholastic standards are high, the secondary system won a citation from the University of California this past year for the excellence of its graduates.

Every other phase of living is almost equally well provided for. There are two churches, a Community church and a Catholic church, with a Four Square Gospel church a mile away in Argus and a Latter Day Saints church soon to be built at Pioneer Point, new housing development just outside Trona. For the women there are church societies and a University Women's club, a branch of the national organization.

There is a chess club, a tennis club, an 18-hole golf course. Focal point of most activities is the recreation center, where there are bowling alleys, facilities for badminton, dancing, a stage for local-talent plays, clubrooms and refreshment bars.

Outdoors there are tennis courts, lighted for night playing in the summer months. Here youngsters also roller skate on summer evenings and watch free motion pictures.

Trona offers far more than the average American town of 3000 to 5000. In addition to its modern grocery store, department store, drug store, pool hall, service station, barber shop and post-office, the town's 24-bed hospital serves not only company employes, but all of Searles Valley. There are two medical doctors, a dentist. The hospital is equipped with X-ray equipment and a busy nursery.

Everything, of course, is company-owned. But all the businesses are operated on a profit-rebate system—the profit is returned to the consumers. Trona even has its own "money." Employes may buy script which they can spend in any Trona establishment. At regular periods they receive their share of the profit made by the grocery store or department store, according to how much script they have purchased. Grocery prices are comparable to super-market prices in Los Angeles, the drug store sells items such as a 50-cent tube of toothpaste for 39 cents—just as do the big city cut-rates. The system is the next thing to a consumer cooperative, except that the stores are company-owned.

The second day I was in Trona the desert sun was warm by 10:00 o'clock in the morning. George Baker and I shed our coats as we made a tour of the extensive processing plant. When we finally emerged at noon from the

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Looking east across Searles Lake toward bleak Slate Range.

bulk storage rooms where the air was so fogged with dust we could hardly see, we were perspiring and our hair was powdered white. "Don't worry, these salts are all soluble in water," George said. So after lunch when George Sturtevant offered to drive me out to Valley Wells, about five miles from Trona, where there is a tree-ringed swimming pool as big as a football field, I gladly accepted. Here, in addition to the huge pool, there are picnic tables, an outdoor concrete dance floor, barbecue facilities—and miles of free open desert.

It was here that the 1950 state convention of the California Federation of Mineralogical Societies was held June 17 and 18. Most of those attending camped at Valley Wells, for motor court accommodations were limited. It was the first outdoor convention in the history of the state Federation—and no better place could have been chosen than California's Mojave desert. Trona is literally in the center of one of the best collecting regions in the West, numerous field trips in quest of rare crystals in Searles Lake and

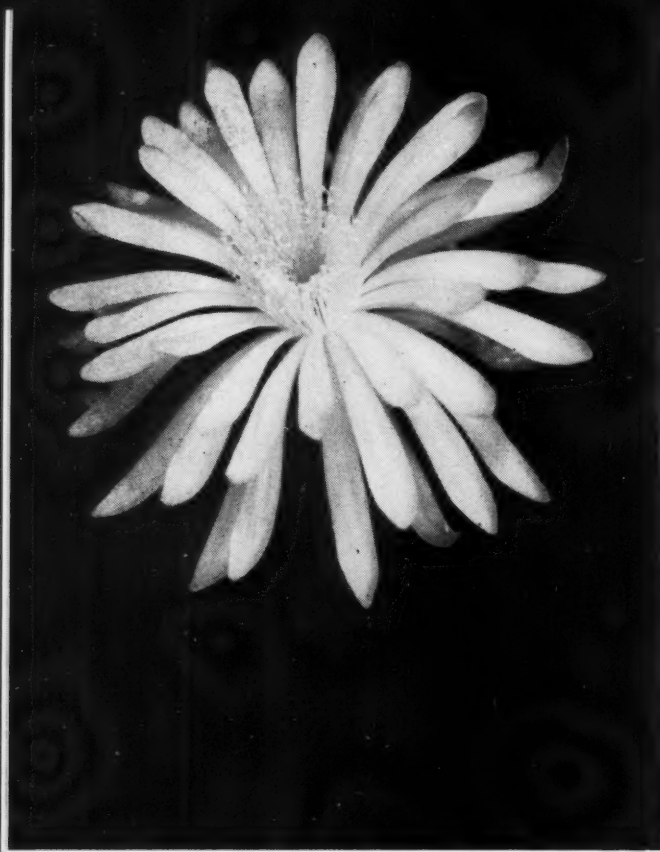
to the surrounding mountains and canyons were arranged.

Visiting rockhounds collected opals and onyx in the Argus Range, blue chalcedony at Moonstone beach at south end of Searles Lake. They went home with fluorescent hyalite opal and fluorescent aragonite, agate nodules and geodes. And from the depths of Searles Lake itself they obtained rare crystals brought up in drill cores from test holes sunk by company rigs. The list of these crystals is lengthy, some cannot be found any place else. Hanksite, for instance, comes only from Searles Lake. It varies from black to nearly transparent, is brought up from 15 to 20 feet below the lake's surface. Darkness in the hanksite is caused by impurities. A few lucky enthusiasts came away with specimens of sulfohalite, found only in one other lake in East Africa. There are others: gaylussite, pirssonite, tychite, thenardite, glazerite (rare), nahcolite (very rare), trona and burkeite and northupite. Some of these come from as deep as 250 to 500 feet—would not be available to rockhounds were it not for

drilling operations of the corporation.

But the gem and mineral hobby is just one phase of life in Trona. "The social life here," declared one transplanted easterner who in two short years has come to love the desert in all its moods, "is terrific." There are cultural groups and activities, endless opportunities for camping trips or hunting and fishing for the outdoor lovers. There is a baseball field where 32 teams of youngsters play organized hardball. And over it all there is the serenity of a desert night, the freshness of a desert morning, the beauty of a desert sunset.

James M. Ewing is a man who has retired twice. He retired first as a battalion chief on the Los Angeles fire department. But he wasn't ready to quit. So he came to Trona in April, 1934, as the town's fire marshal. On November 1, 1949, he retired again. But he isn't leaving the Mojave desert. He has homesteaded his own piece of desert just north of Trona and is building with his own hands the little house that suits him. There he will live out his remaining days.



Above — Wide-open blossoms of *Serpent Cactus* or *Cereus serpentinus*. This species comes from Mexico, but has been extensively introduced into our own areas, is well known to most cactus fanciers.

Below—Flowering *Serpent Cactus*, showing habit of growth.

They Perfume the Night

By MARY BEAL

THERE ARE plants that beautify the desert with enchanting blossoms on very scanty rainfall. The gay annuals that make up a spectacular spring flower display need well-timed rains to produce liberal blooming, but the cactus family can be relied upon to flower—rain or no rain.

All the members of that spiny clan are blessed with showy blossoms, but the most fascinating of them are those that save their loveliness for the hours of darkness, the prized night-blooming *Cereus* group. You may know them only as cultivated treasures, for their native range above the Mexican border is not extensive, but if you have once seen a night-blooming *Cereus* in bloom, you'll ever after welcome other chances to watch its unfolding and inhale its perfume.

The first glimpse impresses you with the appropriateness of the name *Reina-de-la-Noche* or *Queen-of-the-Night*. In early days it was a delightfully anticipated occasion when the *Queen-of-the-Night* was due to open up her heart and permeate the desert air with enticing fragrance. Late in the afternoon the long buds begin to expand, the tips bursting apart by dusk, the long petals gradually spreading wide to a span of several inches, fully open in an hour or so. They lend enchantment to their environment all night long, their perfume scenting the air for a surprising distance.

Each blossom lasts only one night and by sunrise begins to fold up, is entirely closed and drooping before mid-morning. This flowering may occur as early as late April but usually in May or June. Quite often one or two blossoms appear and from time to time other flowers open, for a period of several weeks. I've seen 7 open flowers at once on a plant and authentic reports number 2 dozen open blossoms making one plant a memorable spectacle.

The Organpipe cactus, *Saguaro* and *Senita* are *Cereus* species but we are by-passing these plants of large size to focus interest on those that are inconspicuous except when putting on their night show. There are two species native to our southern desert areas, the most widespread being our *Queen-of-the-Night*, known botanically as

Cereus greggii

The plant is low and easily overlooked, the strongly-angled slender stems of a blackish-green color, usually a foot or two long, although sometimes 2 or 3 times that length. The very short stiff spines are finely barbed and closely pressed against the 4 to 6 prominent ribs. The fleshy tuberous root is beet-like or turnip-shaped, buried deep in the ground, ordinarily weighing 5 to 15 pounds but sometimes grows to the huge size of more than 40 pounds, and there are reports of even more enormous ones. The Indians didn't miss such obvious food possibilities. Sliced and roasted or fried, the Mexicans as well as Indians found the roots appetizing and nutritious. Freshly-cut slices of the tuber were credited with therapeutic value as poultices for the relief of chest congestions.

Now it is the esthetic value that is of more importance, affecting all who share in the beauty of its flowering. The exquisite blossoms have a petal spread of 5 or 6 inches, atop a slender tube 5 to 8 inches long. The white petals have tinges of pale lavender or pink on the back, the sepals more strongly so. The fruit is bright red when ripe in the fall, 3 to 5 inches long and egg-shaped, with a long beak. Usually growing under shrubs or small trees, such as *Catsclaw* and *Creosote* bushes, the dull-colored stems blend into the general background. They are found ordinarily in the valleys but sometimes on hillsides, up to 4000 feet elevation, over much of the southern half of Arizona, southern New Mexico, western Texas and northern Mexico. Another similar species with inconspicuous stems and the same manner of growth, about the same size and general aspect is

Cereus diguetii

The stems have 6 to 9 very broad flattened ribs and the flowers are smaller. It grows in the extreme southern part of Arizona, Lower California and Sonora. The fleshy roots look much like sweet potatoes and the older plants produce quite a crop of the tubers, sometimes 2 or 3 dozen.

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High up on the 8000-foot summit storm clouds gathered. The wind rose to challenge the moisture-laden invaders from the Pacific. And a wild, elemental battle ensued. Photograph by Harold Weight.

Diary of a Jackrabbit Homesteader . . .

The wind blew the shingles off her roof, the coyotes invaded her commissary, and an irresponsible plumber left her stranded without heat or fuel—but this red-headed city gal wouldn't quit. Last month Catherine Venn told how she got her homestead and moved a little cabana out there to live in. Here is the story of her first two nights alone on the desert.

By CATHERINE VENN

7HAT FIRST NIGHT on my jackrabbit homestead was one of the longest nights of my life.

The light of the lamps from my windows gave me an uneasy, target-like feeling, so I turned down the wicks and puffed out the flames. I held my cold hands to the chimneys, clinging to such warmth as they gave as the unheated cabana was fast taking on the atmosphere of an ice box.

It quieted my uneasiness to peer out the windows to see what I could see. Faintly discernible in the pallid light of the new moon, the shrubbery moved in wraith-like forms in the breeze, and I could fancy all sorts of grotesque figures in the rocks and cacti. In the stillness the creaking noises of the cabana as it settled on its foundation did not soothe my city nerves. I thought of staying up all night, but was soon driven to bed for warmth.

I must have been nearly asleep when I was startled by a strange sound. I jumped up and peered out the window. There was a stealthy movement on my little rock hill. My heart beat loudly as I waited for some sound that would identify the curious visitor out there in the darkness.

Then I heard two sharp yelps. I moved to the other window and saw what looked like a couple of wolves milling about. Thinking a light might frighten away the beasts I set a lamp in the window. The shaft of light caught two animals pawing my thermos bottle around as if

it were a football. Then I remembered I had left the supper snack mother had prepared for me on a rock outside. In the excitement of my first night in the cabin I had forgotten about eating.

I rapped and banged loudly about the cabana, and they disappeared. I stood watch until I was numb with cold afraid they would return—and disappointed when they failed to do so. Next day at the nearest gas station I learned that my reception committee was hungry coyotes on a nocturnal forage. But they were still wolves to me!

It was near dawn before I finally went to sleep.

I had thought I would be braver, but I discovered that when a city woman transplants herself to a solitary, untested environment, it is too overwhelming an experience to be conquered overnight. Often I am asked "Aren't you afraid?" and "Don't you get terribly lonesome?" But conquering fear and emotions have been just part of the challenge of my adventure.

Next morning when the sun was up I drove to the nearest town for a tank of fuel gas and a man to connect my gas stove. He arrived later, looked at my stove, and told me he hadn't brought the right wrench and fitting. Nevertheless I paid him \$3.00 per hour portal-to-portal pay as requested. He said he would return in the morning, which was a Saturday. But he failed to do so.

Saturday and Sunday nights were bitterly cold. Snow had fallen on the hills above. Monday I was afraid to leave my place for fear the gas man would come while I was going after him again. Tuesday I decided something had to be done about that stove. I rummaged in the tool compartment of my car and found a pair of pliers, a wrench and some gummy stuff. And without a union card I somehow connected up that little stove with what gadgets were on it. The meanest part of the job was bending the copper tubing to fit properly. When I finally turned on the valve and struck a match to test for leaks I was more surprised than not that there wasn't an explosion.

I had just settled down to enjoy a comfortable evening in the luxury of a heated domicile when a sharp gust of wind slapped the thin walls of the little cabana. It cringed and quivered. Successive gusts became increasingly severe. The wind grew angry. It would strike and run away as if to pick up momentum before it raced back howling for another blow.

That was too much for me. I decided I preferred coyotes to wind. I extinguished the gas and the lamps, gathered up blankets, and fled by flashlight to my car.

It was a long night of suspense. I was chilled and miserable, huddled in the front seat of my car fearing it also could not withstand such an onslaught. By morning the storm had spent itself. But it returned with renewed fury to drive me out for the second night.

On the second morning it was still blowing and most of the composition shingles on one side of my roof were standing straight up. The ornamental shutters looked like crooked postage stamps stuck on a letter. I was afraid the roof would be gone with the wind before I could save it. Then a jeep bobbed out of the wash. The driver looked like an angel to me, and she was. She and her family lived half a mile away at the mouth of the canyon.

She asked if I had shingle nails. I showed her the hardware assortment father had packed for me—and he must have anticipated this. Using her jeep and me for a stepladder she climbed to the roof and was almost blown over the top in a heavy gust. I tacked the lower flaps, and in that frosty-cold gale we hammered down everything that was loose. Not until then did it occur to us

that this might cause the roof to leak. But it never has.

I arranged to have my good Samaritan's son come over after high school and anchor the cabana at the corners with angle irons buried in cement and rock. He jeeped down a small tank of water from the canyon stream and I had hustled up a broken sack of cement near the welding shop where I went for the strap irons.

My young cement mixer laughed when he saw me use both hands to lift a five-gallon can of water, and then drop it on my toes. But I learned—it wasn't long before I could tote a five-gallon can of water in each hand for a number of yards.

I told him about my coyotes and he said that one evening at dusk several of them stalked him through the section. He said he walked and whistled as if he wasn't concerned because if he had run he was afraid they would have taken him for a giant jackrabbit and given chase. His mother told me that while they were building their cabin she was sleeping in a tent and upon seeing the eyes of an animal gleaming in the opening, turned her flashlight right into the face of one surprised coyote.

There were many tales in the area of bold coyotes singly and in packs which made me afraid to step out of my door after dark. And little did I know then that two months later I would be on speaking terms with a large coyote I called Boy, who was never late in keeping his rendezvous with me on the first night of every new moon. He loved chicken bones and always sang his thanks before daylight, a poignant wail as if to a lost mate far off in coyote heaven. One has missed something who has never heard a far-off coyote serenade. Boy was a frequent lone diner at Rock Hill and never failed to chasten me in aggrieved tones when his fare wasn't up to that becoming a star boarder.

Rock Hill is the baby toe on a foot of graduating hills that rise to the flank of mountains which separate the coastal plain from the desert. It was up these hills that I set out on my first hike. A tag-along wind dogged me—the first since the cabana was securely anchored.

High up on the 8000-foot summit storm clouds gathered. The wind rose to challenge the moisture-laden invaders from the Pacific. And a wild, elemental battle ensued. Time and again the rolling mass of clouds plunged over the mountain backs determined to carry their moisture to the desert goal. Each time they were driven back by the defensive tactics of the wind fighting to hold the desert line. Unknowingly, I had witnessed the thrilling, spectacular phenomena that occurs up on the high rim when the rain-laden clouds encounter the dry blasts from the heated desert floor. It was a vivid revelation. No longer could I despise the wind. It had become something heroic, glorious in battle, the battle of holding back the clouds to win the victory of the desert.

(Catherine Venn's story will be continued next month)

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Cover Contest Winners . . .

Winners of first and second prizes in *Desert Magazine's* annual Cover Contest were Harold O. Weight, Pasadena, California, and Bob Leatherman, San Bernardino, California. Weight, who is a regular contributor to *Desert* with his rock and gem field trips, won first prize of \$15 with a close-up of a desert lily. Leatherman was awarded second prize and \$10 for a night picture of a baby screech owl perched on the limb of an old pepper tree. These will appear on future covers of *Desert Magazine*. Judges considered entries and awarded prizes June 20.

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ROCK SQUIRREL: Anyone familiar with the large, bushy-tailed Gray Squirrel might at first sight mistake the ground-loving Rock Squirrel for its distant, tree-climbing relative. But the two squirrels are quite different. Rock Squirrels inhabit canyons and mountain slopes adjacent to desert areas. They are often noticed sunning themselves on some prominent point where they can get a good view of the surrounding country. When startled they emit a sharp whistle-like call, and disappear among the rocks.

Furred Denizens of the Desert

By GEORGE M. BRADT
Photographs by the Author

We who live in the desert regions of the great Southwest must learn to accept the unalterable facts of heat and drouth. Unlike our furred, feathered and scaled neighbors—the desert's rightful homesteaders—we cannot change our bodies or living habits to meet the conditions set by our chosen habitat. It is impossible for us to develop the pocket mouse's ability to live without water, or the owl's night-eyes for nocturnal activity. We must change the natural environment to suit our needs and tastes. But in so doing we often adopt measures which closely parallel the habits of many desert creatures.

Just as numerous inhabitants of the cactus and thorn-

bush wastelands, the rattlesnakes for instance, wait until sundown to hunt and travel, we often postpone the beginning of long, hot desert trips until the cool of evening. Like the abundant ground squirrels or "gophers" that live in deep earthen burrows, we build our own homes from the selfsame material—and call it adobe! Rock squirrels retire for a few hours during the hottest part of the day: the sensible human takes his siesta. And the common cottontails and jackrabbits doze away blistering summer hours in the shade of shrubs and trees, just as do we when we can.

The accompanying photographs are of five desert dwellers which succeed in surviving the rigors of desert summers without the aid of air-conditioners, refrigeration, electric fans, tropical worsteds, or mint juleps.



***GRAY FOX:** This small, pretty fox is found throughout the arid regions of the Southwest. It is occasionally seen hurrying across desert roads at night. It hunts nocturnal rodents and cottontails but also dines on cactus fruits and vegetables. Daylight hours are usually spent in sunless caves or hollow trees. This fox measures about four feet in length and averages eight pounds in weight.*



***HOG-NOSED SKUNK:** This handsome animal shares with its two close relatives, the Striped and Spotted Skunks, the devastating ability of spraying unwary enemies (and photographers) with a burning, pungent scent. Its insect, small rodent, and cactus fruit fare is hunted at night, and with the aid of its pig-like rooting nose. This skunk makes its home in the desert areas adjoining the Mexican Border.*

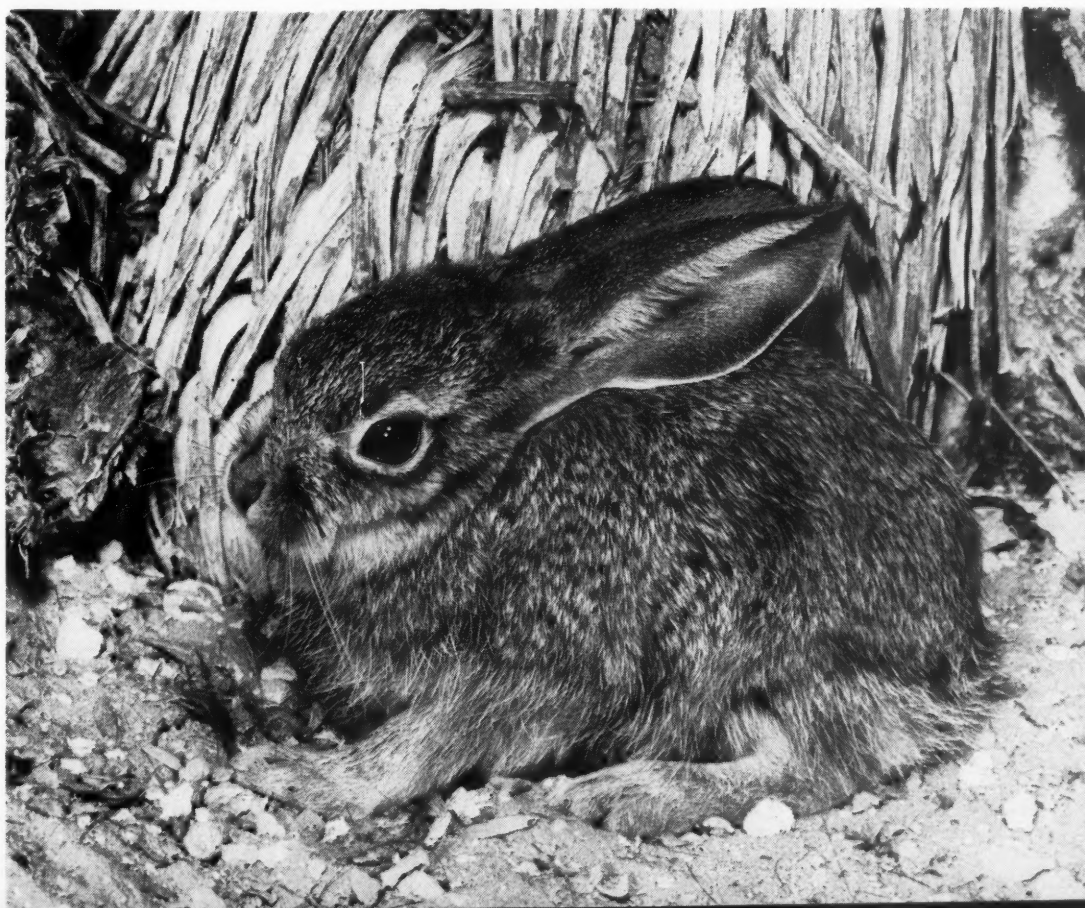
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YOUNG GROUND SQUIRREL: Here is the common "gopher" of cactus flats and the edges of desert highways. It has a high, trilling call. It is often observed sitting erect near the mouth of its burrow with its "hands" crossed on its tummy. Ground Squirrels provide tasty meals for hawks and owls, and many four-footed, furred hunters. This "gopher" is *Citellus spilosoma*.

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BABY JACKRABBIT: Like its parents this young fellow has big feet and long ears. During the day it hides motionless in a shallow "form" or nest-like cavity scooped out in the soft sand beneath the dense branches of a desert bush. When startled it jumps from its hiding-place and dashes away at a tremendous speed—as high as thirty or thirty-five miles an hour. Jackrabbits are usually common and considered a pest. But by furnishing the larger meat-eaters with food they do keep coyotes, foxes and owls from dining exclusively on game birds. Jackrabbits are really not rabbits. They are hares. This young one belongs to the Genus *Lepus*.



MINES AND MINING . . .

Panguitch, Utah . . .

Little plants which died by the millions many millions of years ago may bring new wealth and prosperity to the upper Sevier River valley. The skeletal remains of diatoma, a genus of diatomaceae, make up the recently-discovered white deposits of Kieselguhr—diatomaceous earth—which has many industrial uses, including the making of dynamite. Gale Wilcock of Hatch made the discovery and now 10 residents of Hatch and Panguitch have joined in a partnership for development of the deposit, expected to run well over a million tons. They have combined under the name of Antler Mine.

The microscopic plants which formed the deposit were an algae, the fronds of which secrete silica (silicon dioxide). The new find is said to be almost pure silicon, unpolluted by lime. Usually diatomaceous earth is found in combination with lime, necessitating expensive refining. Test diggings as deep as 15 feet have been made without reaching limit of the deposit. Diatomaceous earth has many uses in both industry and chemistry. It is one of the best filters obtainable, is unsurpassed as an insulating material, is used by the oil refining industry, in cleansers, in soap and insecticides. A road has been constructed to the mountainside mining site. — *Garfield County News*.

Greenriver, Utah . . .

The Vitro Manufacturing company of Pennsylvania may build its projected uranium mill at Greenriver rather than Grand Junction, Colorado, according to reports. Final decision will depend primarily on where ore can be obtained. Attention is now centered on Temple Mountain and the rest of San Rafael reef, where important discoveries of uranium ore have been reported recently. One shipment of select ore from the reef by Smith Brothers and Clay Asimus, is reported to have brought \$600 per ton in Denver. — *The Mining Record*.

Tonopah, Nevada . . .

A two-foot width of good grade shipping ore has been opened up in a new drift on the Green Gold property at Gilbert, 23 miles west of Tonopah, according to Jack Hansen, one of the owners. The Green Gold was discovered by Chris Hansen of Reno in 1931, and considerable gold ore was shipped from the property prior to this latest find. — *Pioche Record*.

Winterhaven, California . . .

Announcement that the Holmestake Mining company will handle custom ore at the mill it is rebuilding following a fire in 1947, has sparked a renewal of activity in the Cargo Muchacho mining district of eastern Imperial County. Work on the 500 and 600-foot level of the Muchacho mine has disclosed virgin ore of good mill grade, with some spots of high grade. The Muchacho mine was discovered soon after the Civil War, reportedly has produced several hundred thousand dollars worth of gold bullion. There are a number of small mines in the district. — *Imperial Valley Weekly*.

Washington, D. C. . . .

A compromise bill opening up for mining nearly 300,000 acres of Joshua Tree National Monument in California has been passed by the house of representatives. The legislation, sponsored by Congressman John Phillips, of Banning, is designed to end a dispute between conservationists and mining groups over granting prospectors entry to additional portions of the monument in San Bernardino and Riverside counties. The bill reduces the protected recreational and scenic area to 549,000 acres, safeguarding the most spectacular stands of Joshua trees, and also straightens borders of the monument. On the land which will be opened to prospectors there are already many small private claims established before the monument was established. — *Los Angeles Times*.

Tonopah, Nevada . . .

A commercially feasible process has been evolved for recovery of gold from activated carbon, it is reported by James Boyd, director of the state bureau of mines. Research in the new method started in 1948. Key to the new process is that it permits re-use of activated carbon — which is expensive — and thus will make economically feasible the processing of low-grade mine ore. The process was tested on a commercial scale at the Getchell mine at Redhouse. A pilot plant there has been in operation since March, 1949. — *Tonopah Times-Bonanza*.

Winnemucca, Nevada . . .

A thousand tons of ore a day is reported being hauled from the Ogeepinson gold mine at Granite Creek to the Getchell mill as operations at the mine have been resumed. It had been shut down since January, 1949. — *Humboldt Star*.

Marysville, Utah . . .

New Park Mining company became the second Utah mining company to start prospecting for uranium ore when it opened exploring work in Paiute county recently. The work follows preliminary studies in the area, actual mining operations are scheduled soon. — *Salt Lake Tribune*.

San Francisco, California . . .

Bulletin 162, Geologic Description of the Manganese Deposits of California, is now ready for distribution, according to Olaf P. Jenkins, chief of the state division of mines. The bulletin contains a detailed description of manganese deposits, is a supplement to Bulletin 125 issued in 1943. In California at least 800 deposits from 675 localities are known, during World War II the state was second in production in this country. The book contains maps of several hundred individual manganese deposits; geologic maps; vertical sections; index maps and topographic maps. In a pocket at the back are 20 plates. The bulletin (cloth bound) may be purchased for \$2.75.

Benson, Arizona . . .

Full production was scheduled to be resumed this month at the Johnson Camp mine of the Coronado Copper and Zinc company. The mine closed a year ago because of the drop in the price of copper. — *San Pedro Valley News*.

Wickenburg, Arizona . . .

Development of a large low-grade manganese deposit at Artillery Peak, 10 miles northeast of Alamo Crossing, has been started by the Bureau of Mines. Output of this strategic mineral for the nation's steel industry is being encouraged by the federal government. The deposit is on the Bill Williams River about 40 miles north of Salome. Bureau engineers have estimated the deposit at more than 50,000,000 tons of manganese ore. — *Wickenburg Sun*.

Washington, D. C. . . .

A house bill authorizing establishment of a \$750,000 rare and precious minerals experiment station in Reno, Nevada, has passed both houses of congress and gone to President Truman for consideration. A sum of \$25,000 annually is provided for maintenance and operation expenses. — *Pioche Record*.

Reno, Nevada . . .

The Mackay School of Mines at the University of Nevada will become a separate college beginning September 1, 1950. — *Tonopah Times-Bonanza*.

He Could Crack a Bull-Whip

Western writers have long glamorized the stage coach with its galloping mustangs and the dare-devil driver and shotgun messenger who travelled the western trails before the coming of the railroad. But there was another group of men, no less valiant, who plodded along in their own dust and camped where they were when night came. These were the freighters who once supplied the army posts in Arizona with food and other necessities. Here is a story of those freighting days, as recalled by one of the few survivors.

By MARION BECKLER

UNDER ARIZONA'S November sun Balls' freighters rumbled eastward, raising a cloud of dust a mile long. On the forward wagon, his tall figure swaying with the jolts, the "Old Man" kept his eyes on the jagged horizon. Of all the run from Wilmington, California, to Phoenix and Prescott, this Ehrenberg-Wickenburg stretch was the least to his liking . . . Apache country. Things happened.

But the freighters were seldom attacked by the Indians. Even an Apache would think twice before he tangled with W. H. Ball and the 30 to 40 rough and ready mule-skinner who drove the wagon train on this desert route. Ball had a reputation for being a sure rifle shot, quick on the trigger—and the tough, alert men he picked to wrangle the heavy freight loads on this long run kept their rifles close at hand. Often the train was accompanied by immigrant wagons whose drivers trailed along for protection.

The Old Man's face became grim as he recalled the last trip across this stretch to Wickenburg. A likeable young chap named Boren had stayed with the freighters this far. Then he became impatient with the slow pace of the freight wagons and hurried on ahead. Next evening the freighters came upon what was left of his outfit.

Yes, this was a dangerous road for unprotected travelers. To the north was Date Creek Reservation where the Apaches were coralled. But the tribe that had menaced neighboring Indians through the centuries was not changing its ways now. Even though the government was furnishing food, isolated settlers were still raided, stage



Elmer Ball and the hands that cracked the bull-whip on the old freight run.

coaches and wagons still attacked. And General Crook's pursuit of the Indians, through huge canyons and lava beds where no slightest mark was left, had so far been unsuccessful.

On this 5th day of November, 1871, while Balls' freighters were pushing eastward, the stage coach out of Wickenburg was speeding westward. In another two hours they would have met.

The stage driver, "Dutch John" Lanz, nervously gripped the reins. Was it his own fears that made the horses skittish — or did they sense something? Seven passengers were crowded into the coach: important business men, a famous writer, and Miss Molly Shepard, the beautiful dance hall girl.

But nothing was going to happen, Lanz told himself. Hadn't he driven the stage once over this run and come back alive? Still, he wished fervently

he had taken some precautions. If only he hadn't let his passengers stack their firearms under the seat.

Suddenly Lanz lashed the horses. The carefree voices from inside the coach broke off. The air was filled with the devilish whoops of Apaches!

Two hours later, Balls' freighters rumbled to a halt beside what was left of that Wickenburg stage. "The wagon was still smoking. One man, scalped, was still alive," says Elmer Ball, grandson of W. H. Ball. "Our freighters were the first to come onto the massacre. We were 24 hours ahead of the soldiers. Folks say the driver of the stage was new and lost his head and went for the hills—the worst thing he could have done. The Indians came in on both sides."

General Crook reported the massacre to the Secretary of War in these words: "Mail-stage on route from Wickenburgh to Ehrenberg was at-

tacked about nine miles from the former named place. Driver, John Lanz, and passengers, Frederick Shoholen, Frederick W. Loring, R. M. Hanel, W. G. Salmon, and C. S. Adams, killed, and Frederick Kruger and Miss Shepard wounded."

Though wounded, Molly Shepard, with Kruger, escaped toward Wickenburg. She reached her destination in California but died soon after.

The Wickenburg massacre was given wide publicity because of Frederick Loring, the well known young writer from Boston. His death stirred the East to indignation over Washington's dilatory policy regarding Apache atrocities. However, it was not until eleven months later—October 2, 1872 — that Crook's report, containing pages of just such incidents as the Wickenburg affair, was sent to the Secretary of War. With it went the recommendation by Major Gen. Schofield, commander of all the western divisions, that "Gen. Crook be given ample means and full authority to deal with the difficult problem. . . . I think it must now be evident that forbearance toward the Apaches of Arizona has reached its extreme limit, and that no course is left us but a vigorous and unremitting prosecution of the war they have so long invited, until they are completely subdued."

And so Crook's army post at Prescott was strengthened, finally, and the Apaches dealt with. But meanwhile Balls' freighters kept on, apparently the one formidable body in the West. Since 1857 they had hauled supplies to the Arizona army posts. During those turbulent years they kept vital materials moving into Arizona's isolated communities which much of the time were cut off from the East, communities which doubtless would have perished but for Ball and his mule-skinners.

Much of the glamor of the old West comes down to us centering around the stage coaches, with their six galloping mustangs and their daredevil drivers, and the shotgun messenger guarding the strongbox of gold. But not much has been written about those old freighters, with their twelve, sixteen, or 20-mule teams controlled by a single jerk-line.

During the years the stage coaches were speeding over the roads, the freighters were plodding along in their own dust, taking their time—three or four months to Arizona's towns and back. They did not depend on stations for they carried their own supplies and water—two barrels to a wagon, lashed on the sides. They would start at 3:30 a.m. and travel until 10:00 p.m., making camp wherever they happened to be. The mules they started with

TRUE OR FALSE

This is a test for versatile people. The questions include a bit of history, geography, mineralogy, botany and some knowledge of the Indians and the lore of the Great American Desert. If you read Desert Magazine month after month you will find your score improving, for all these questions have been answered more than once in these pages. 12 to 14 is a fair score, 15-16 is good, 17-18 excellent, and 19 or 20 is super. The answers are on page 39.

- 1—The Chuckawalla lizard is a poisonous reptile. True..... False.....
- 2—The lower end of Grand Canyon may now be reached by boat from Hoover dam. True..... False.....
- 3—Wasatch is the name of a mountain range in Arizona. True..... False.....
- 4—Quaking Aspen trees shed their leaves in winter. True..... False.....
- 5—The Mormons observe Saturday as a day of rest. True..... False.....
- 6—Azurite is a form of iron ore. True..... False.....
- 7—Green River is a tributary of the Colorado River. True..... False.....
- 8—Sevier desert is in Utah. True..... False.....
- 9—The homes of Hopi Indians are known as hogans. True..... False.....
- 10—Catalina Mountains in Arizona may be seen from Flagstaff. True..... False.....
- 11—Rattlesnakes are most vicious when the weather is cold. True..... False.....
- 12—Some of the Pueblo Indians of the Southwest still use a stone metate for grinding meal. True..... False.....
- 13—Desert lilies grow from bulbs. True..... False.....
- 14—Wild burros were roaming the deserts of the Southwest when the Spaniards first came to this region. True..... False.....
- 15—Santa Fe is the capital of New Mexico. True..... False.....
- 16—Indians living on the shores of Pyramid Lake in Nevada are Pimas. True..... False.....
- 17—The tamarisk or athol tree widely used for windbreaks on the Great American desert is not a native of this country. True..... False.....
- 18—Ballarat is a famous ghost mining town in Nevada. True..... False.....
- 19—The trail to the top of Mt. Whitney on the desert side is known as Bright Angel Trail. True..... False.....
- 20—The Gulf of California was once known as the Sea of Cortez. True..... False.....



Monument erected along Highway 60 near Wickenburg in 1937 to commemorate the tragedy of 1871 when a stage driver and his passengers were massacred by Apache Indians.

made the entire journey. They hauled from Wilmington to Prescott, Phoenix, Tucson.

Their northern route crossed the river by ferry at Needles. Their central route kept east from Whitewater and crossed the river at Ehrenberg. This road went on to Wickenburg, then a mere station, and there branched to Phoenix and to Prescott. Another route turned south from Whitewater along what is now the north shore of Salton Sea, to cross the Colorado at Yuma. Still another route followed the stage road east as far as Warner's, then up Montezuma Valley and down Grapevine Canyon, meeting the stage road again at about Plaster City—and on to Tucson.

"We never had Indian trouble because we treated the Indians right," Elmer Ball told me. "In some places they brought feed, and they always got paid for it. If my grandfather told 'em he'd do a thing he always did it."

"Up at Whitewater Station there'd been Indian trouble, so my uncle, Struthers Ball, took over the station. He could speak Indian and he got along with them. They'd bring in grama grass on their backs for the mules and the stage horses . . ."

A man now in his seventies, Elmer Ball has for many years been a small rancher in Escondido valley, in Southern California. He is tall, lean, quick—much, I imagine, like the "Old Man" who dared start freighting in

the old wild West. His black eyes snapped with excitement as he went on, "The pictures that are made nowadays of 20-mule teams are all wrong. They have 'em all with bridles. Only the leaders and wheelers wore bridles."

"And a bull-whip! Folks now don't even know what a bull-whip is. But when I was a kid I practiced with one till I could crack it like a pistol-shot. I've seen my step-dad pick a fly off a mule's back with the bull-whip without ever touching the mule."

"Kids nowadays drive their hot-rods. But when I was eleven I drove one of those 12-mule team freighters cross-country and back! We were all ready to pull out of San Berdoo where we lived, and a teamster was missing. The 'Old Man' said, 'All right, sonny, get up there and take the jerk-line!'"

There was yearning in Elmer Ball's eyes for the old days of mule-freighting. Of climbing onto the high seat and feeling the heavy wagon rumble under him as the mile-long caravan started on another trek across the desert.

The Balls sold out in '84, when the railroad was put through San Bernardino. W. H. Ball died in Anaheim in '95. He had come out from Illinois and had filled an important place in the building of the early West.

On the Wickenburg road is a monument, built in 1937, to the victims of the stage coach massacre. And alongside the road at Death Valley Junction

stand some of those sturdy old freighters—reminders of a brave past.

REDWOOD GROVE NAMED FOR JEDEDIAH SMITH

Jedediah Smith, pioneer, explorer and the first American to enter California by the overland route, has been honored by having a Redwood grove on the Smith River in northwestern California named for him. It was in 1826 that Jedediah Smith first entered California, he discovered the Smith River in 1828.

A bronze tablet telling briefly of Smith's discovery of the river in the Redwoods is to be placed on a massive boulder in Jedediah Smith Memorial grove near the Hiouchi bridge across Smith River on the Redwood Highway. The Grove is about four miles northeast of Crescent City, California.

Jedediah Smith was discoverer of the central route from the Rockies to the Pacific; leader of the party which made effective discovery of the South Pass; the first white man to cross Nevada; the first to traverse Utah from north to south and from west to east; the first white man to conquer the high Sierras and the first to explore the Pacific slope from San Diego to Vancouver. He has been called the greatest trail breaker of this period. He was called "Bible-Toter" by his companions, went with his Bible in one hand, his rifle in the other.

LETTERS...

Why Editors Go Crazy . . .

Turtle Mountain Camp, California Desert:

Your editor and his sculptress wife did not need to go to the history books to find out which of Pegleg Smith's legs had been amputated. Obviously his right leg was missing. Surely the doctors or whoever cut off his leg would not have taken off the wrong leg—it must have been the right. And the leg that was left—well, it was still left.

JESSE A. CRAIK

Unfair to Lost Gold Hunters . . .

Elsinore, California

Desert:

For nearly 15 years I have been studying lost mines, lost nuggets, lost treasure, or "lost anything" that would give me a good excuse for an occasional trip out on the desert. They become very real, and when you make six or seven of them add up to one little mountain or corner of the desert you sure hate to have some scientific fellow come along and prove them all wrong.

I am just a johnny-come-lately compared with H. E. W. Wilson, who for 50 years has dreamed and tramped, jackassed and climbed, knowing that those elusive nuggets or those three gold-covered buttes could be just around the bend of the next arroyo. Henry really is the high priest of the royal order of nugget-hunters.

But alas, if the reports coming to me are true, this grand old man of many a long, long trail has fallen. For 50 years he stayed with the faithful, but now he has backslid—taken to scientific doodlebugging. Gone is his jackass. His legs enthroned in a jeep, and armed with one of those geophysical contraptions he has started out to wreck your and my childhood dreams and many a man's alibi for getting out on the desert.

It is hard to take—like hearing your best friend is a communist, or Jim Farley has joined the Republicans.

I hope before it is too late Henry will see the error of his ways—and go back to honest prospectin'. It really is a little unfair to the whole tribe of lost gold-hunters to bring one of those scientific contraptions into the game.

V. E. LARRICK

Rocks You Throw at Dogs . . .

Los Angeles, California

Desert:

I'll help you clear up the mystery of that pile of agate mentioned in Har-

old Weight's story of the Lost Alvord mine in your June issue.

In March, 1948, the Los Angeles Lapidary society had a field trip to the Alvords—scouted by Ted Schroeder and myself. I went there a day early, and to make sure the others would find the right turn I piled up a collection of dog-rocks at the spot where you found them.

Our members found the pile of rocks all right. From a hilltop I watched them go through the specimens as you did. Also, I left a trail of float between my jeep tracks to see if these rockhounds could follow that kind of a "scent" to the collecting area. They did!

In that area we found some good jaspagate and plume agate, but not much. There is still a possible geode field in there somewhere.

JACK GASTON

P.S. You never heard the term "dog-rocks?" That's easy. That is the kind of rocks you throw at dogs. They're not worth taking home.

Grave on the Mojave . . .

Los Angeles, California

Desert:

For your information, the picture of the old grave marker on page 24 of your July issue was taken about 1927 or 1928. The grave was along the old road from West End to Johannesburg, south of the junction with the Inyo-Kern road. The weathered inscription on the old wooden headstone showed a pick and shovel, but no name. Perhaps one of Desert's readers will know who was buried here, and when.

R. B. LYTTLE

Public Lands for the Public . . .

Randsburg, California

Desert:

I have just been reading your editorial comment on page 46 of the February issue of Desert. This is a timely and appropriate article, as it is about time someone should raise their voice in protest against the continuing encroachment of the various government bureaus and military departments on the public domain of the Southwest. I hope you will make a crusade of it.

ROLF L. MEUER

Invitation to Randsburg . . .

Randsburg, California

Desert:

We want to extend a special invitation to Desert Magazine's staff and its readers to visit Randsburg's Desert Museum when they are on this part of the Mojave. The museum, which has one of the finest rock collections in the West, is open Saturdays and Sundays, on holidays and by request. There is no charge of admission.

Also, I am glad to report that your editor's rather uncomplimentary remarks about the tin can dumps in and around Randsburg have gotten some results. They have cleaned up the public dump, and one of the largest mine owners has been busy for weeks hauling the trash away from mining claims in the camp.

JOHN G. MAXWELL, Curator

THE Desert MAGAZINE CLOSE-UPS

Myrtle Mae Simer, who wrote this month's story of the Hopi Snake Dances for Desert Magazine, is unusually well qualified for this assignment because she is a native Arizonan who has spent most of her busy life in Winslow. She knows many Hopi Indians personally.

She is a former newspaper reporter and writer, having worked for many years for the Arizona Republic at Phoenix and the Mail at Winslow. At present she holds a real estate broker's license and regards her spare time writing as a hobby.

Her spare time also includes many other activities of a civic nature. She is legislative chairman for both the Business and Professional Women's club of Winslow and the Arizona Federation of Women's clubs and an active member of the Eastern Star and the Community Concert organization, of which she was one of the organizers.

Her husband is Clay B. Simer, Arizona state senator for Navajo county. During legislative sessions Mrs. Simer does his secretarial work at the state capitol.

One of the most significant archeological stories in Desert Magazine will appear next month when M. R. Harrington's report of the excavations at the Stahl site on the Mojave desert is scheduled for publication. At the Stahl site much evidence is being uncovered regarding the character and habits of Pinto Man who hunted his game in this region an estimated 3000 to 10,000 years ago. As curator at the Southwest museum in Los Angeles, Harrington is in charge of the excavation at this prehistoric site.

Harold and Lucile Weight, now making their home in Pasadena, plan to return to the desert in the months ahead. They have acquired a site near Twentynine Palms and are making plans for a cabin which they will occupy when not in the field gathering material for their magazine feature stories.

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AZINE



Kenneth Chegay, Apache miner, and Charles O. Reid-head working the open pit asbestos mine near Salt River bridge.



Frank Lewis, mining engineer, and Louis Kuehne, veteran prospector, at one of the Kuehne mines overlooking the Salt River.

More Profitable than Gold

Since few people are familiar with the process by which asbestos is obtained, Randall Henderson visited one of the most productive asbestos areas in the West in order to give *Desert Magazine* readers a glimpse of the operations involved in the mining and milling of this strategic mineral.

By RANDALL HENDERSON

MY GUIDE on a tour of the asbestos mines in central Arizona was Louis A. Kuehne, an ex-lumberjack from Wisconsin.

Louis quit the logging business to come west more than 30 years ago, and during the intervening years has prospected and mined all over the West. He spent many years in the Death Valley region.

He has prospected for gold, silver, lead and copper—but his present interest is asbestos. Actually asbestos can be mined more profitably these days than gold, for asbestos is a strategic mineral and the United States

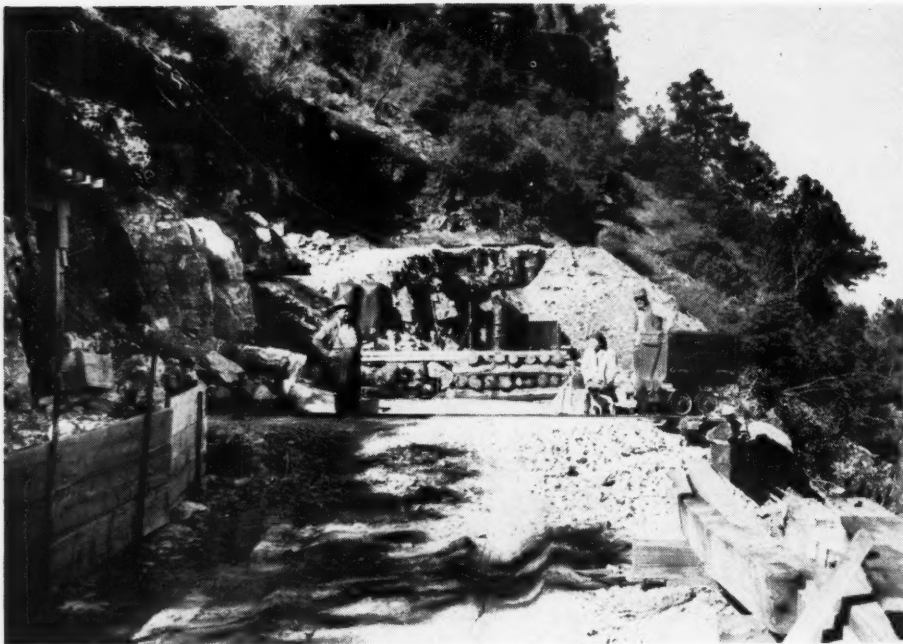
produces only four to seven percent of its annual consumption. The remainder comes mostly from Canada, South Africa — and formerly, from Russia.

In March this year I met Louis Kuehne at Seneca, Arizona, 35 miles east of Globe on Highway 60. Seneca has a service station, restaurant and cabins operated by Mr. and Mrs. James Youngblood to serve motor tourists, and miners who work a half dozen asbestos claims in the vicinity.

Frank Lewis, mining engineer at the Kuehne claims, told me about the geology of the region. It is a rather

technical story. Briefly, asbestos is a form of serpentine known as chrysotile. In the formation of the earth's crust seams of serpentine were formed between layers of diabase and limestone in this vicinity.

These veins of serpentine, which is an olive-green mineral with a wax-like sheen, probably would have remained far beneath the surface and unknown to mankind for another million years had it not been uncovered by one of the elemental forces of Nature — erosion. The deep canyon which is the channel of the upper Salt River flows through the heart of the asbestos deposits—and most of the mines are in the sidewalls of the canyon. For countless ages the runoff water which comes down from the White Mountains of eastern Arizona has been chiseling the great Salt River gorge, and in the process these veins of serpentine were exposed.



One of the Kuehne mines where asbestos is obtained by tunnelling into the sidewalls of the canyon above Salt River.

Most of this land today is in the San Carlos Apache Indian reservation. Many of the mines are operated under concession from the Indian Service, and a royalty is paid into the Apache tribal fund.

The Indians knew about these outcrops of asbestos 35 years ago, but it was not until November, 1919, that Congress opened the way for mining the claims under lease from the Indian Service.

Louis Kuehne took me into one of the tunnels on his property where the sidewalls were seamed with narrow

veins of short-fiber asbestos. Outside was a stockpile of the material awaiting shipment by truck to Globe where the rock would be processed at the mill of the Globe Asbestos company.

The quality of asbestos as it occurs in place varies greatly. Long fiber brings a higher return than short fiber. Then there is a further grading as to the quality of the fiber—harsh, semi-harsh and fine.

Nature selected a lovely spot for these Arizona asbestos deposits. The hills here at this mile-high elevation are covered with coniferous trees and

Guy Phillips mill where asbestos ore from nearby mines is processed for shipment to many parts of the world.



the waste material from the mines for the most part avalanches down the steep slopes of the canyon walls and disappears in the underbrush without leaving the unsightly dumps so characteristic of mining camps.

The asbestos market is high now, due to the fact that the government is stock-piling the material. The *Engineering and Mining Journal* for January quoted No. 1 crude asbestos from Quebec at from \$960 to \$1050 a ton. Lower grades of fiber used in making shingles, paper and building blocks were quoted as low as \$68.50 a ton.

Guy Phillips is a veteran of the Seneca asbestos industry. He has several mines and processes his own fiber at a mill located on a wide ledge high up on the canyon wall. Workmen in his plant showed me a bin of snow-white processed fiber which is said to bring \$1500 a ton for filtering purposes in a chemical laboratory.

The rock from the mine first goes through a crusher which breaks it into large pebbles fairly uniform in size. These pass through a series of heavy rollers which reduce the mineral to a fibrous mass. A hammer-mill further separates the fiber. The asbestos then passes over a series of screens which separate it as to grade.

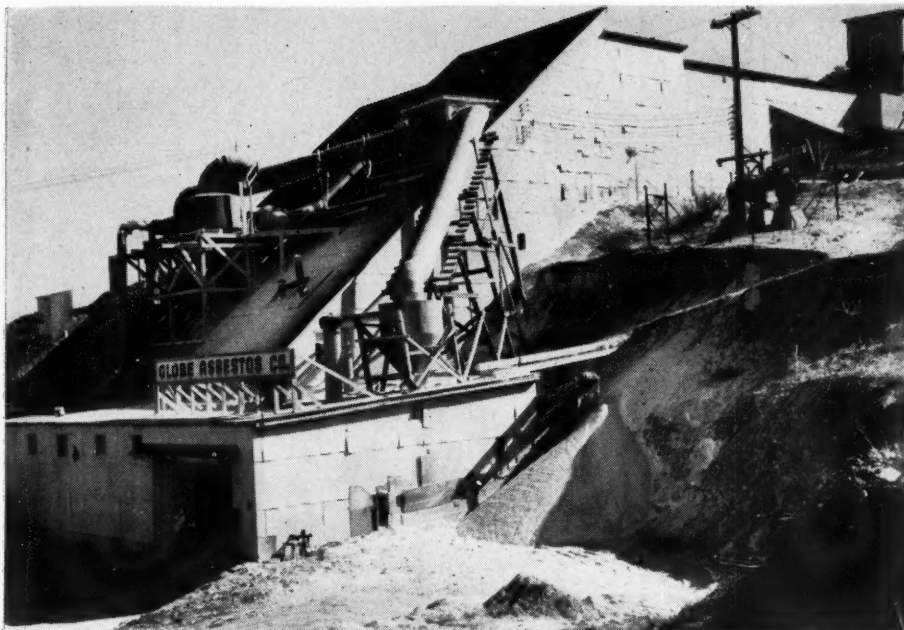
The Phillips mill has a reputation for producing very fine quality asbestos, and shipments are made to Germany, Spain and Japan.

From the Phillips mill we drove down the long grade to the bottom of the canyon and crossed Salt River on one of the most photographed bridges in Arizona.

Just above the river on the other side we drove off the highway to a newly-opened asbestos mine where Charles O. Reidhead, veteran mining and stock man, has been using a bulldozer to remove the over-burden that covers a wide-spread deposit of asbestos. Reidhead and Kenneth Chegay, an Apache Indian boy, were taking samples of asbestos out of a recently exposed vein to be sent to Japan.

Reidhead and his associates, Hugh Larson and John Lupe, had elaborate plans for a new mill which they expect to install for processing the extensive deposits of asbestos lying just above the high water line of the river.

The asbestos market, I was told, is largely controlled by the Johns-Manville company, which has extensive holdings in Canada, and is the largest single user of the processed mineral. The Canadian product is of exceptionally high grade, and it is only when the market is on high levels that small independent operators with limited capital and equipment can com-



Much of the asbestos mined in the Seneca area is processed at this mill on Highway 60 near Globe, Arizona.

pete on the open market. However, the Arizona asbestos miners feel that they have a great quantity of marketable chrysotile in sight, and are planning installations which will make their operation much more efficient than at present.

Asbestos is an essential item in both the home and the workshop today. It is used for roofing, pipe and electrical insulation, gaskets, brake-linings, clothing, paint, and in combination with many plastics. In 1943 Canada reached a wartime peak production of 476,196 tons, with South Africa producing over 100,000 tons. Output in the United States in any one year has not exceeded 25,000 tons.

Along the mine road at one point on our tour Louis stopped his car and dug into a gravel embankment and

produced and handful of fossilized clams. These are found in several places in the area he said, relics of a period when a great inland sea covered a large portion of the present state of Arizona.

Lupine and paint brush were in blossom as we drove along the roads to the mines, and Louis told about prehistoric cliff dwellings in the canyon walls along the Salt River. On the walls of the cafe at Seneca were the mounted heads of the peccary or javelina which are found in these mountains along with deer and lions. It is a wild rugged country in which these asbestos mines are located—a terrain which has changed little since the days when the Apaches roamed here and regarded this region as their private domain.

SMOKI PEOPLE DO MORE THAN STAGE DANCES . . .

The Smoki People of Prescott, Arizona, do more than stage their annual ceremonials and dances as public performances. How the organization started a movement which led to discovery of outstanding Indian artifacts in Yavapai County was told by Russell Insley at a recent meeting of the Yavapai County Archeological society.

To preserve artifacts of the region, many of which were being taken out of the country before laws were passed prohibiting their removal, members of the Smoki People—white men and women — formed an archeological society. Some excavating was undertaken. At King's ranch, in the grave of an Indian chief, were found 63 rattles, mosaics and beads. The chief may have lived 800 or 900 years ago.

Pottery found was classified by Dean Cummings of the University of Arizona as Prescott black-on-white.

Just outside Prescott at the site where the Smoki clan stages its annual performance in August, were found two stone ram heads, said to be extremely rare. The Smithsonian Institution would like to have the heads.

Work of the archeological society initiated by the Smokis and the University of Arizona led to opening of Tuzigoot, according to Insley. This ruin (*Desert*, June, 1950) is now a National Monument. Archeologists excavated the spectacular site in 1933. Tuzigoot perches atop a hill overlooking the Verde River in Arizona.

The Smoki clan also maintains a museum, now occupied by Grand Canyon college. The museum is open to the public on Wednesday afternoons.



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In the Land of Enchantment



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AUGUST 10-11-12-13
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Gallup, New Mexico



Inter-Tribal Dances at Gallup

Indian tribesmen representing more than 30 tribes and pueblos in the Southwest will assemble in Gallup, New Mexico, August 10-13 for their Inter-Tribal Ceremonial exhibition. Recognized as the most colorful Indian demonstration held annually in the United States,

the Gallup Ceremonials include costumed dances and parades daily during the program, and an exposition of the finest native art and craftwork produced in America. Those who plan to be present at this year's Ceremonials should write to the Gallup Chamber of Commerce for reservations.



HERE AND THERE . . . on the Desert

ARIZONA

Smoki Time at Prescott . . .

PRESCOTT—The dates of August 5 and 6 have been set for annual presentation of the colorful and unique Smoki pageant in which white men and women—painted and authentically costumed—stage Indian dances and ceremonials in a realistic setting outside Prescott. This year for the first time the Smoki tribesmen have decided to add a Saturday night show to the traditional Sunday night performance, since there have been turn-away crowds in recent years.

The Smoki tribe is made up of Prescott people whose hobby is the study and enacting of Southwest Indian ceremonials. The dances and ceremonials and costumes vary from year to year, but the climax is always the Snake dance. Bull snakes are used in place of poisonous rattlers.

Rare Indian Knife Blade . . .

YUMA—What University of Arizona archeologists consider one of the finest specimens of primitive craftsmanship ever found in this section of the country was found on the Kofa game range by Willard E. Blanchard, refuge manager. It is a knife blade and very rare. At first the blade was thought to be a spear or arrow head, but when sent to the university it was classified as the blade of a short knife. Archeologists could not establish its age. It is said to be difficult to classify artifacts from the Kofa range because it is believed to have been a battle ground for raiding Apache, Pima, Yuma and Navajo Indians. — *Yuma Daily Sun*.

Arizona Run-offs Low . . .

TUCSON—Figures on run-off in Arizona rivers give added evidence of drouth conditions that have plagued the Southwest for the past season. Only hope is for heavy summer rains in July and August. The Gila River had the lowest May run-off since the start of records in 1914. The Salt River above Roosevelt reservoir was only 30 percent of normal. The Verde River in early July was down to 70 percent of normal, the lowest since 1939. The Little Colorado River at Cameron was dry the entire month of May, while the Colorado River itself was down to 62 percent of normal at the Grand Canyon. San Carlos reservoir had only 36,000 acre-feet in storage compared with an average of 195,000. — *Tucson Daily Citizen*.

Rescue by Helicopter . . .

GRAND CANYON—Raging rapids in the Grand Canyon of the Colorado claimed a motorboat which braved the gorge in June, but four occupants of the craft escaped death—two of them rescued from the mile-deep canyon by helicopter.

The boat which was smashed to splinters was one of two power-driven craft which started from Lees Ferry, the accident occurred June 16. In the wrecked boat were Ed Hudson, Sr., and Ed Hudson, Jr., Paso Robles, California; Willie Taylor, Berkeley, California; William Belknap, Boulder City, Nevada. In a lighter boat were Otis Marston, veteran river runner from Berkeley, and Guy Forcier and Joseph Desloge, St. Louis, Missouri. These three were able to complete the hazardous trip through the canyon to Lake Mead.

The crack-up occurred as the two boats, the Esmeralda and the Hudson, were running Crystal rapids, 18 miles below Grand Canyon village. Motor of the Esmeralda—a 26-footer—gave out in the rapids and the boat went out of control. It was pounded to bits on the rocks. Belknap and Taylor were picked up by Marston's 22-foot motorboat, but the two Hudsons remained on a sand bar.

It was Mrs. Marston who discovered the near-fatal accident. She had rented a helicopter to fly into the canyon on a hunch that something had happened to her husband and his party. Mrs. Marston and the helicopter pilot sighted wreckage of the Esmeralda floating downstream. Flying back up the canyon they saw the Hudsons on the sand bar. They landed on the floor of the canyon and spent the night, then next day flew to Tucson and made arrangements for another helicopter to join the rescue operations.

One, piloted by Edwin Montgomery, located the younger Hudson and brought him out safely. Elmar Carter in the second helicopter took the elder Hudson aboard, but had a forced landing on a narrow ledge about 3000 feet below rim of the canyon and about 1000 feet from the river at its bottom. Montgomery made another trip into the canyon, brought out Pilot Carter, then returned next day and rescued Hudson, Sr. — *Tucson Daily Citizen*.

New Meteor Museum . . .

WINSLOW — A new museum to cost about \$30,000 is being built on north rim of Meteor Crater, 24 miles from Winslow, by the Standard Iron company of Philadelphia. The Philadelphia firm owns the property jointly with the Tremaine Alfalfa Ranch and Milling company of Winslow and Phoenix. The crater is five miles south of Highway 66, the highway turn-off is 19 miles west of Winslow. Mr. and Mrs. Ted Johnson are to be in charge of the museum, are now at temporary offices. — *Gallup Independent*.

Houserock Buffalo Being Moved . . .

PHOENIX — Arizona's buffalo, now located in Houserock Valley, are to be moved to avoid starvation, the state game and fish commission has announced. Half of the 125 animals are to go to the buffalo refuge on Anderson mesa. To find a permanent home for the last remaining Arizona buffalo, the commission said it is waiving all rights to Houserock Valley in return for approximately 100,000 acres of range in the Kaibab National Forest. — *Coconino Sun*.

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Another Dam on Colorado . . .

YUMA—Still another man-made barrier is controlling the flow of the unruly Colorado River. Morelos Dam, eight river miles below Yuma where for a short distance the Colorado forms the boundary between United States and Mexico, was completed this month. Designed to divert water for irrigating more than 300,000 acres of fertile land in the Mexicali Valley, the dam has been built to comply with provisions of a water treaty with Mexico covering waters of the Rio Grande and the Colorado.

Under the treaty, Mexico is guaranteed 1,500,000 acre-feet of water annually. Water will be diverted by the dam into the Alamo canal, main canal for the Lower California system. This serves land on west side of the Colorado. Eventually, according to plans, land east of the river in the State of Sonora will also be served by Morelos Dam, a \$7,000,000 structure.—*Calexico Chronicle*.

Undisturbed Natural Area . . .

GRAHAM COUNTY—A remote corner of Graham County which, due to its isolation, has been virtually untouched by man, is considered to represent vegetation and soil conditions as nearly natural as can be found in Arizona. Here a group of forest and range technicians made a recent study which is expected to be a valuable aid in determining effects of logging and grazing on similar sites in the Southwest.

Known as Malay gap, the undisturbed natural area lies at an elevation of 8000 feet in the northeast corner of Graham County. It supports an excellent virgin stand of ponderosa pine. No logging has occurred and no cattle have run on the range. Only grazing has been by deer and elk, which abound. The primitive region is on the San Carlos Indian reservation.—*Tucson Daily Citizen*.

Dr. Salsbury Takes New Post . . .

PHOENIX—Dr. Clarence G. Salsbury, who recently retired after a quarter of a century as superintendent of the Ganado Presbyterian mission and Sage Memorial clinic on the Navajo reservation, will join the state department of health September 1 as chief of the bureau of preventive medical services. Annual salary is \$7440.—*Holbrook Tribune-News*.

More Rain—Less Fighting . . .

SALT LAKE CITY—If California and Arizona would stop fighting over waters of the Colorado river and start making rain, they could save money and get more water, according to Robert D. Elliott, research director of the American Institute of Aerological Re-

search at Pasadena, California. He made the assertion at a Salt Lake City meeting of the American Meteorological society.

He said the two states spent more than \$200,000 during 1949 to support water lobbying groups in Washington in the fight over the Central Arizona project. For \$200,000, he claimed, the annual rainfall in the Colorado River basin could be increased by more than enough to enable both states "to embark upon every project either has thus far planned."

He said he and Dr. Irving P. Krick, president of the institute, would "stake our scientific reputations" upon their ability to deliver adequate water for both states in the contested lower Colorado basin—and could do it without robbing any other section of the country of any appreciable amount of water.

The men use the method of seeding clouds with silver iodide particles. They say they are rain-increasers, not rain-makers, lay no claim to being able to make it rain "when it wouldn't rain normally."—*Tucson Daily Citizen*.

CALIFORNIA

Palm Springs Pioneer Passes . . .

PALM SPRINGS—The Desert Inn, today Palm Springs' best known hotel, was opened in 1909 by Mrs. Nellie Coffman. It consisted of a few tent houses with accommodations for 20 people and a dining room which could serve 13. Today the hotel and its allied buildings and shops occupy 35 acres in the heart of Palm Springs, for despite early hardships and set-backs, Mrs. Coffman was from the start firmly convinced that Palm Springs was destined to become a famed winter resort.

Mrs. Coffman lived to see her dreams and predictions come true. Then on June 10 she died suddenly at her Banning home. She would have been 83 years of age November 1, but was active, busy and alert up to time of her death, still planning for the future.—*Palm Springs News*.

Indian Basket Exhibit Continued . . .

LOS ANGELES—The special exhibit of Indian baskets, which was on display at the Southwest Museum during July, will be continued through August, it is announced. Many of the rare old Indian baskets have never before been on display. The Southwest Museum is in Highland Park, Los Angeles, is open daily except Mondays from 1:00 to 5:00 p.m. There is no admission charge.

Mexicali-Gulf Road Completed . . .

CALEXICO—The Gulf of California—called the Vermilion Sea by early

Spanish explorers—is at last easily accessible by highway from the California border. The Mexicali-San Felipe road has been completed, and already the flow of visitors to Mexico's scenic gulf has started, although it is mid-summer. The highway is 124 miles in length, starts at Mexicali—across the border from Calexico, California—and runs to scenic San Felipe, until now a sleepy fishing village. At present there is only one motel in the village, but development is certain to proceed rapidly. Fishing on the gulf is unexcelled. The giant totuava, Mexican sea bass, is the most sought-after game fish.—*Calexico Chronicle*.

Here's One for Ripley . . .

INDIO—Coachella Valley, California, had one of its seasonal sand storms June 6. Farmers, road crews and housewives dug out after the blow had subsided, and thought that was the last they would hear of that particular storm.

But they were wrong. Weather bureau officials in Washington have reported that the great Pacific haze which halted shipping and air travel over a million square miles of ocean about mid-June might have been caused by sand from the desert wind storm. Bureau officials said the haze was composed of sand—desert variety—rather than volcanic ash from erupting Mauna Loa on the island of Hawaii, as previously assumed. — *The Date Palm*.

Ship Canal Not Practical . . .

CALEXICO—Mexico would not risk damage to its part of the rich Imperial Valley by dredging a canal for ocean-going vessels from Mexicali on the California border to the Gulf of California, in the opinion of Michael W. Straus, reclamation commissioner. Straus expressed his thoughts on the matter in a letter written from Washington to the editor of Harper's Magazine. Straus objected to an article *A Cataclysm Threatens California* in April issue of the magazine. The article, by Alfred M. Cooper, said that Cali-

fornia's Imperial Valley is in danger of being inundated by waters of the Gulf of California.

There has for years been talk of a canal from Mexicali to the gulf, or along the Colorado River channel to Yuma, but nothing has ever been done about it.—*Calexico Chronicle*.

Cattlemen Oppose Fishing Project

INDEPENDENCE—Cattlemen of Owens Valley are opposed to a sportsmen's project which calls for expenditure of about \$100,000 for establishment of a series of warm water lakes along the Owens River. The lakes would provide sport fishing and feeding grounds for ducks, quail, pheasants and other wildfowl. The plan is proposed by valley sportsmen and representatives of the state division of fish and game. Opposition is based on the theory that cattle ranges along the river would eventually be ruined.—*Inyo Independent*.

Desert Again Is Test Ground . . .

EL CENTRO—The U. S. army is again using the desert as a testing ground. A special unit of army field forces troops (named Task Force Furnace II) has been assembled near El Centro to make exhaustive tests of new military equipment under desert summer conditions. Among items of equipment to be tested during an eight-week project are tanks, tractors, vehicles, radio equipment, power units and many other pieces of equipment.—*Imperial Valley Weekly*.

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NEVADA

Processing Plant at Gabbs . . .

FALLON—Construction has started on a huge kiln and other facilities for Basic Refractories, Inc., which will manufacture deadburn and other refractories to supply the company's outlets west of the Mississippi. Finished products heretofore have been produced in a plant at Maple Grove, Ohio. The company takes ore from the largest magnesium deposit in the western hemisphere, at Gabbs. Shipping weight of magnesite, from which the refractories are made, is reduced 58 percent by making the finished products in the Nevada plant. There has been a

vast increase in demand for furnace-lining materials in the West where steel and other plants have been built during and since the war. — *Fallon Standard*.

Reclamation Program Anniversary

BOULDER CITY—First generation of hydroelectric power at the nearly-completed Davis Dam on the Colorado River marked the start of the Bureau of Reclamation's 49th year of land and water conservation and development. Davis Dam (*Desert*, May, 1950) is located 67 miles downstream from Hoover Dam. Anniversary of the bureau's establishment was observed June 17.

It was in 1902 that congress created the Bureau of Reclamation, since then it has carried on an ever expanding program of construction, including dams for irrigation and flood control plus power development, irrigation works, land reclamation and conservation. — *Mohave County Miner*.

Aged Indian Warrior Dies . . .

NIXON—Bob Foster Godowa, last remaining member of the tribal party which buried famed Paiute Chief Winnemucca and who was believed to be the oldest Indian in Nevada, died in June at Nixon. He was known to be at least 97. Godowa came to the

Nevada territory at an early age from Lake County, Oregon, his birthplace. He fought as an Indian warrior under Chief Winnemucca during the bloody pioneer wars of early-day Nevada. — *Humboldt Star*.

It'll Be a Few Years . . .

WASHINGTON—Of course silt is gradually filling Lake Mead behind Hoover Dam, but the huge structure has a useful life of at least 275 years ahead of it, according to Interior Secretary Oscar Chapman. Some alarmists have claimed the lake will soon be filled by silt, ending usefulness of the dam. "That is just simply not true," Chapman declares.

He emphasized that vigorous conservation measures must be taken to "keep the silt on the land where it belongs," but said Hoover Dam is not in jeopardy from silt. He revealed that since the dam's construction 15 years ago more than 2 billion tons of sediment have accumulated in Lake Mead—but this has filled up only 5 percent of the water storage capacity. If the present rate of sedimentation continues, the lake will be filled with silt about 445 years after completion of the dam. The dam's earnings will repay its construction costs within the next 57 years, Chapman said.

Restoration Is Proposed . . .

FALLON—Development of 3000 to 5000 acres of grazing and pasture land along with restoration of the Pelican Island area to make it a public waterfowl hunting ground, has been proposed by the state fish and game commission. Pelican Island was once a natural hunting area, and the land around it provided grazing for cattle. — *Fallon Standard*.

NEW MEXICO

Mining Town Sold for Salvage . . .

GALLUP—The 46-year-old coal mining town of Dawson, located on the eastern slope of the Sangre de Cristo Mountains in northeastern New Mexico, has been bought for salvage by the National Iron and Metal company of Phoenix, Arizona. The town was owned by the Phelps Dodge corporation, mining operations were closed only recently when conversion to diesel locomotives on railroads removed the market. The 300 families which constituted the town's population were moved out after school closed last spring. Sixteen houses and the land were not included in the deal. These were retained by Phelps Dodge for employees who operate for the corporation a 52,000-acre cattle ranch surrounding the town. — *Gallup Independent*.

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Taking Rain-Making Seriously . . .

SOCORRO—Prominent New Mexicans are beginning to take seriously this proposition of increasing rainfall by artificial means. Some 200 leaders from all parts of the state gathered at the School of Mines recently at a meeting of the Water Resources Board appointed by the Economic Development Commission to hear results of rain-making studies and to consider cloud-seeding as a method of increasing the state's rainfall.

Cars arriving at the conference drove through pools of water from a down-pour of the day before, said to be the result of cloud-seeding with silver iodide. The rain extended for hundreds of miles from Socorro and fell in adjoining counties. The state is at present financing rain-making studies at the School of Mines, money is expected to be made available from the governor's emergency fund for an actual rain-production program. New Mexico is the first state to embark on a rain-making study program.—*Alamogordo News*.

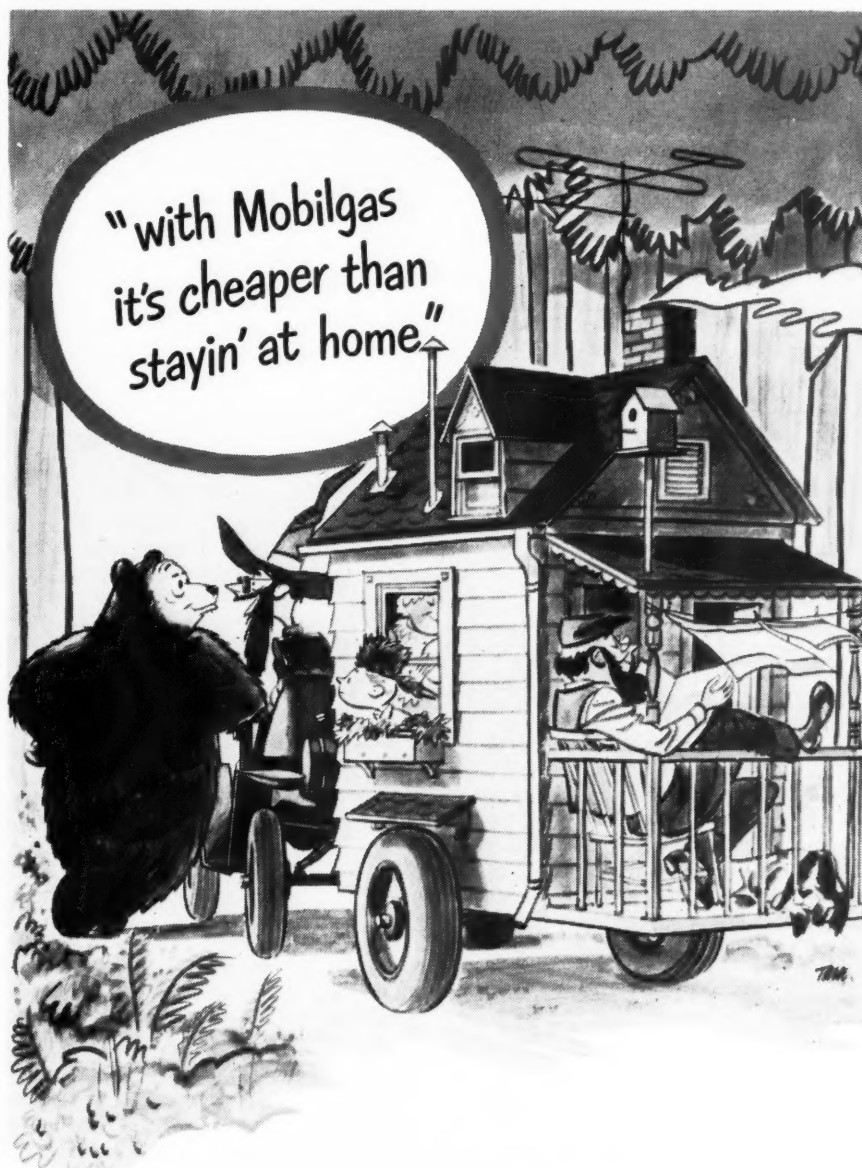
Drouth Bringing Suffering . . .

AZTEC—An immediate future of aggravated poverty is faced by many of the Navajo tribesmen as a result of dry weather during the past months. Employment is not as plentiful as it was during war years, still hundreds of Navajo men are scattered over western states working on railroads while others by the hundreds are looking for work. On eastern part of the huge reservation conditions are critical.

TRUE OR FALSE ANSWERS

Questions are on page 28.

- 1—False. The Chuckawalla is harmless.
- 2—True.
- 3—False. The Wasatch range is in Utah.
- 4—True.
- 5—False. The Mormons observe Sunday as a day of rest.
- 6—False. Azurite is a copper ore.
- 7—True.
- 8—True.
- 9—False. Navajo homes are known as hogans.
- 10—False. Catalina Mountains are near Tucson, Arizona.
- 11—False. Rattlesnakes are sluggish in cold weather.
- 12—True.
- 13—True.
- 14—False. The Spaniards brought the first burros to the New World.
- 15—True.
- 16—False. The Indians on the shores of Pyramid lake are Paiutes.
- 17—True. The tamarisk tree was imported from Asia about 50 years ago.
- 18—False. Ballarat is a ghost town in California.
- 19—False. Bright Angel trail leads to the bottom of Grand Canyon.
- 20—True.



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Many families have moved, some to find work or odd jobs, some have settled along the San Juan River in hopes of raising a crop. Many would like to move, but can't find land or employment. Jake Chee, one of the larger stockmen with 1500 head of

sheep, says he will do well to lamb 50 percent because it is so dry and feed is so short that ewes are unable to care for their young. This condition, Jake says, is general over much of the Navajo country.—*Aztec Independent Review*.

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UTAH

Cattle Trek to Mountains . . .

PANGUITCH—Twenty thousand cattle and 50,000 sheep are spending the summer on the cool highlands of Dixie National Forest. Permits are required to graze livestock on national forests. An additional 3000 cattle and 20,000 sheep which were under permit are being kept off the land for range protection, since summer forage is not good because of lack of winter rains.—*Garfield County News*.

• • •

Another Accident on River . . .

GREENRIVER—Howard Baldwin, 25, and LaMoyné Parker, 21, put in at Jensen, Uintah County, in a rubber raft on Sunday, June 11, had a second rubber raft loaded with supplies and food. About 40 miles upstream from Greenriver, the supply raft was swamped on Thursday. The rapids had been getting worse and worse, according to Baldwin, so when they were faced with making the run to Greenriver without provisions he decided on an overland hike. Parker took his chances on the river and arrived Thursday night in Greenriver, making the 40 miles alone.

Taking only a canteen of water, Baldwin began the climb out of the precipitous river canyon. "After about eight hours," he recounted, "I saw I

wasn't making much progress. I checked a map and saw I still had about 30 miles to go, so I turned back." Thursday night he tried walking along the river bank, but found his way blocked after he had gone a few miles. He stayed at that point Friday night and returned to the swamped supply boat Saturday. He righted the rubber boat and in the afternoon continued his trip the way it started—on the river. He arrived in Greenriver about 8:00 p.m., weary, hungry but unharmed.—*Salt Lake Tribune*.

• • •

Historical Society Reorganized . . .

SALT LAKE CITY—Dr. Joel E. Ricks, head of the history department of the Utah State Agricultural college at Logan, is the new president of the Utah State Historical society and Father Robert Dwyer, Salt Lake City, is vice president. They were elected at recent meeting of the board of directors. The other 10 members of the board represent various areas of the state.—*Washington County News*.

• • •

Brand Rulings Stiffened . . .

SALT LAKE CITY — Stockmen representing 15 states were told at the Western States Brand conference that in instances of conflict between federal and state branding laws, provisions of federal laws will come first. M. J. Cook, federal administrator, said the government is going to see that the law is complied with.—*Salt Lake Tribune*.

• • •

MONTICELLO — The Utah fish and game commission has planted pheasants in San Juan County, choosing likely spots near Blanding for the experiment. It is expected they will increase in a few years to the point where there may be seasonal hunting.—*San Juan Record*.

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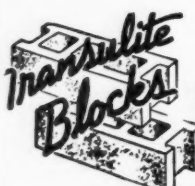
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THE *Desert* MAGAZINE
PALM DESERT, CALIFORNIA

Gems and Minerals

RANDBURG DESERT MUSEUM HAS SCHEELITE COLLECTION

What is claimed to be the largest collection of scheelite in the world is now on display in the enlarged Desert Museum at Randsburg, California. The collection includes specimens from all over the North American continent, collected during the past 35 years by Tom Warren, president of a firm which manufactures mineral lights.

The Desert Museum, a mineral branch of the Kern County Museum, is located in the Rand District, famed as the most important diversified economic minerals district in the nation, and noted for producing the highest grade of scheelite in this country. The district was at one time a booming gold and silver mining region, the oldest mine is still producing ore today.

Members of the Georgia Mineral society and its Prospectors and Explorers section went June 18 on a field trip to Cusseta. They collected flexible sandstone, gypsum, fossilized wood, chalcedony and opal. At the June 5 meeting of the society M. M. Thompson, engineer in charge of surface water flowage for the U. S. Geological Survey, gave an illustrated talk on the rivers and small streams of Georgia, discussing erosion and water problems.

Summer meetings at parks in the area, with potluck meals, are being enjoyed by members of the Sequoia Mineral society. June meeting was at Roeding park, Fresno, California. Members brought jade — both polished and not polished — for display and discussion. Members of the Fresno group were hosts to the society at the picnic supper.

With their annual show June 10 and 11, a regular meeting and potluck on June 14, the California Federation convention at Irona on June 17 and 18 and a board meeting June 28, members of the Long Beach, California Mineral and Gem society had a busy month.

Regular meetings of the Earth Science Club of Northern Illinois have been suspended during July and August. First meeting of the fall will be September 8. Regular meetings are the second Friday of each month at 8:00 p.m., most recent meetings were held in the Avery Coonley school, Downers Grove, outside Chicago.

The San Diego Lapidary society has sent along a hint on polishing soft stones that tend to undercut. Instructions are to mix a small amount of tin oxide and cerium oxide in the palm of the hand. Rub the hard-to-polish stone in the palm of the hand. Polishing will take longer, but the results will make the extra effort worthwhile.

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RAND ASSOCIATION PLANS AUGUST FIELD TRIP

An overnight trip to Paiute Mountain is planned August 5 and 6 by the Rand District Mineral and Gem association. The association announces that rockhounds, prospectors, mineral collectors and members of any mineral club are welcome to go along on any future trip. For details of schedules write P. O. Box 131, Randsburg, California.

THIRD ANNUAL SHOW FOR ORANGE COAST SOCIETY

Third annual show of the Orange Coast Mineral and Lapidary society will be held August 16 through 20 in conjunction with the Orange County, California, fair. The show will be at the fairgrounds on Newport boulevard between Santa Ana and Costa Mesa. A working exhibit showing various machines used in lapidary work will be operated during the entire show by members. Daily demonstrations will be given in faceting, and silversmiths will demonstrate jewelry making.

June 8 was Dona Ana day at the Rocky Mountain Federation meeting, El Paso, Texas, and the Dona Ana County Rockhound club from New Mexico had complete charge of the show. James Kilgore is president.

Nineteenth annual meeting and picnic of the Mineralogical Society of Southern California, Pasadena, was held June 11 in Oak Grove park with many members of other societies as guests. Members and visitors both displayed, and there were specimens for exchange. Following a noon luncheon, officers and directors for 1950-51 were elected.

A field trip to the Rabbit Lake stripping area at Crosby was principal outdoor event for the Minnesota Mineral club, Minneapolis, in June. It was an overnight trip.

With field activity curtailed by the warmer weather of summer, activities of the San Geronimo Mineral and Gem society, Banning, California, are being channeled toward the big fall Banning Gem show. July meeting of the society was at Lake Arrowhead with Mr. and Mrs. Cap Toenjes as hosts.

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AMONG THE ROCK HUNTERS

COLORADO SOCIETY WILL HAVE NEW OFFICERS

In October new officers of the Colorado Mineral society, Denver, will take office to serve during the 1950-51 year. Officers are: Harold T. Hofer, president; Ray W. Thaler, first vice president; James Hurlbut, second vice president; Mrs. Jeannette Haralson, secretary-treasurer; Mrs. C. R. Williams, corresponding secretary. Trustees are Chester R. Howard, Harvey Markman, Miss Muriel Colburn, Richard M. Pearl, Harmon Meissner and Rens Philips.

For the Labor Day week-end—September 2, 3, 4—a field trip to Gunnison is planned.

A humorous illustrated talk by Scott Lewis on "Minerals of the 48 States" was enjoyed by members of the Pacific Mineral society, California, at a recent meeting. May field trip was to an opal mine near Red Rock Canyon. Some of the rockhounds discovered it isn't so simple to break into a nodule of fire opal and recover a fine specimen. Many to their dismay found they frequently scattered chips over the hillside instead of getting out the nice specimen they wanted.

The Gem and Lapidary division of the San Diego Mineral and Gem society took a two-day field trip June 10 and 11 to an area 24 miles north of Yuma, Arizona.

Business was put aside at June meeting of the San Fernando Valley (California) Mineral and Gem society and members enjoyed a potluck dinner and auction sale. Past President Harrison Stamp with his committee made arrangements for the affair.

A hobby show and a travel motion picture featured the June meeting of the Kern County (California) Mineral society, held in the Elliott Community hall, Oildale. Members brought their collections and also examples of handcrafts and of the lapidary art. For July the society was planning its annual picnic.

A talk on the subject of gem stones was given by Past President Fred Smith, a jeweler of Ontario, at the May meeting of the Pomona Valley (California) Mineral club. New president of the club is B. W. Cohoon. The speaker displayed more than 50 Riker mounts of cabochons of different materials. Many of them were different varieties of jasper, in which Smith specializes.

A "picture essay" on the archeology of the Southwest, given by Edwin Goff Cooke, made a very interesting May program for members of the Chicago Rocks and Minerals society. In his lecture Cooke discussed the cultural aspects of the pre-Columbian civilization of the arid regions, and speculated on factors which brought about their rise and fall. The society had its first field trip of the season in April.

The gem and lapidary division of the San Diego Mineral and Gem society enjoyed a May 14 field trip to the Himalaya tourmaline mine at Mesa Grande, while on the same day the mineralogy and resources division visited the old lime kiln on Highway 94, studied geologic features of drifts, granitic rock and other formations and stopped at a deposit of molybdenite with small pyrite crystals in rock cavities.

NEW OFFICERS INSTALLED AT ANNUAL PICNIC

Annual picnic of the Mineral and Gem society of Castro Valley, California, was the occasion for installation of officers who will head the society next year. Officers were elected at last regular monthly meeting of the season, held June 9. Installed at the June 25 annual picnic were: Al Breeden, president; Ward Lewis, vice president; Mrs. Alice Robb, secretary; Mrs. May Meyers, treasurer; Mrs. Gladys Luce, director.

TWO FIELD TRIPS FOR SANTA CRUZ SOCIETY...

A potluck dinner was enjoyed by members of the Santa Cruz, California, Mineral and Gem society at their regular May meeting. Charles Murphy was guest speaker, talking on "Blowpipe Analysis." He is former president of the San Jose Lapidary society. He illustrated with instruments the various tests and operations required to ascertain the qualitative composition of a mineral. On April 30 some society members made a field trip to the New Almaden mine in Santa Clara county. Crystallized dolomite, cinnabar and jasper were found. On May 21 there was a field trip to Pinnacles National Monument.

The society has new officers for the year. They are: Wilson E. Thompson, president; Carl F. Becker, vice president; Mrs. Edna W. Becker, secretary; Hugh S. Baird, treasurer; A. D. Godfrey, director.

The active Albuquerque, New Mexico, Gem and Mineral club is now launched on a new year under leadership of a new slate of officers. They are: Louis Heister, president; Warren Roberts, vice president; Mrs. Mable Kelsen, secretary; F. L. Ratliff, treasurer; Camille Whiting, corresponding secretary. The club meets regularly at 2822 N. Second street, in the building of New Mexico Minerals, offered to the club by Edwin Kraul.

Annual election of officers was held at last meeting of the season June 10 by the Chicago Rocks and Minerals society. During the summer some field trips are planned, but next regular meeting will be September 9. An illustrated lecture on the art of gem cutting, by Dr. J. Daniel Willems, nationally known in the lapidary field, was a feature of the meeting.

The most extensive "show" and party in the organization's history was staged by the East Bay Mineral society, Oakland, California, on June 3. Displays were set up from 1:30 to 5:30 p.m., dinner was at 6:00 o'clock.

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FORMATION OF JUNIOR GROUP IS PROJECT

Formation of a junior group is one of the projects of the Victor Valley (California) Gem and Mineral club. The club is still small, but is growing rapidly and a fund is being set aside for construction of a club building in which lapidary equipment is to be installed for the use of members.

Right now members of the club are preparing displays for the third annual San Bernardino County fair which will be August 24 to 27.

Anniversary party of the Oklahoma Mineral and Gem society, Oklahoma City, was held June 18 to avoid conflict with dates of the El Paso gem and mineral show which was June 7, 8 and 9. May meeting of the society was held at the Museum of the University of Oklahoma with the Oklahoma Geological Survey as host.

Frank Trombatore was elected president of the Southwest Mineralogists, Los Angeles, at their June meeting. James Creighton is vice president, and Marion Thomas is secretary. At July meeting Victor Arciniega, mining engineer and professor of mineralogy and geology, spoke on "Pala Pegmatites."

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WARNING WORD ABOUT NEW JADEITE FIND

The California Federation of Mineralogical Societies has reported that the highly-publicized jadeite discovered in the Clear Creek area of California "is definitely not jewelry material." It will make pleasing book ends, spheres or paper weights, but as to beauty any good green jasper or plasma will far exceed it, the Federation's official publication *Mineral Notes and News*, states. The material will take a good polish and is interestingly veined. Major portion of the rock found is on private property, rockhounds are warned.

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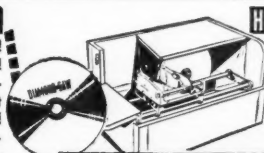
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OFFICERS CHOSEN FOR ILLINOIS SCIENCE CLUB

Permanent officers have been elected for the Earth Science Club of Northern Illinois, which recently was organized. Here are the officers as announced: William H. Allaway, chairman; Roy Beghtol, vice chairman; Herb Beck, recording secretary; Jay E. Farr, corresponding secretary; Stevens T. Norvell, treasurer; Mrs. Ethel Whitney, historian; curator; R. J. Babbitt, editor; Harry Nelson, assistant editor.

Rockhounds are reminded that the 1950 convention of the Northwest Federation of Mineralogical Societies will be held September 2, 3 and 4 in the Armory, Spokane, Washington.

June field trip of the Northern California Mineral society, San Francisco, produced jade, jadeite and jasper for the 14 members who made the two-day trip to Round Valley and Clear Lake. There was a jade exhibit at regular June meeting, and on June 24 a swap party for all members.

Minerals, like humans, have distinct characteristics shaped by their environment—but they adhere to general class patterns. This was illustrated by Arthur L. Flagg, president of the Mineralogical Society of Arizona, at May meeting of the Phoenix group. Regular meetings will resume in October, but informal summer meetings are held once a month, members are notified in advance.

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GEM CUTTER'S GUILD WINS LAPIDARY PLAQUE

The California Federation plaque for best display of lapidary work was awarded at the Trona convention to the Gem Cutter's Guild of Los Angeles. This is second consecutive year that the Guild has been awarded the Federation plaque. A. C. Gustafson, Guild member, won first prize for the best individual lapidary art display.

CHINA LAKE MEN TO EDIT MINERAL MAGAZINE

Ralph Dietz and Don MacLachlan of China Lake, California, were to take over editing and publishing of *Mineral Notes and News*, official publication of the California Federation of Mineralogical Societies, beginning with the August issue. Dietz and MacLachlan are both active members of the NOTS Rockhounds (Naval Ordnance Training Station) on the California desert, both are past presidents of the Rockhounds. Paul VanderEike, Bakersfield, had to give up his position at head of the publication because of ill health.

NEW FEDERATION OFFICERS NAMED AT CONVENTION

Robert Diedrick, Oakland, is new president of the California Federation of Mineralogical Societies, succeeding Jack Streeter, president for two years. Diedrick was elected at the Federation convention in June at Trona, along with: M. L. Leonard, Trona, vice president in charge of Mineralogy; C. A. Dietrick, San Diego, vice president in charge of lapidary; Ilga Hinsey, Sacramento, secretary; Dorothy Craig, Los Angeles, treasurer. Representatives of 55 gem and mineral clubs registered at the convention.

Most of the time at the June 21 meeting of the Searles Lake Gem and Mineral society was taken up in comparing notes on the California Federation convention which was held June 17 and 18 at Valley Wells, just north of Trona. It was an outdoor convention, first in history of the state. Joint hosts were the Searles Lake society, the N.O.T.S. Rockhounds and the Mojave Mineralogical society. May field trip of the Trona group was to Horse Canyon. Several good specimens of green lace agate were collected.

"Minerals of Montana" was topic of a talk given by Jim Underwood at July meeting of the Long Beach, California, Mineral and Gem society. This followed an interesting June meeting when Scott Lewis' color slides were shown, providing an easy and interesting way of learning characteristics of minerals.

July meeting of the San Jose, California, Lapidary society was held July 11 instead of July 4. Exhibits at the meeting were arranged by Raymond Addison, Rita Addison, Al Arhenour, Albert Bluett and J. J. Brodell. Scheduled exhibitors for the August meeting are Mrs. Mary Brodell, Carl Brooks, David Burridge, J. J. Cardoza and Mrs. Cardoza.

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AMATEUR GEM CUTTER

By LELANDE QUICK, Editor of The Lapidary Journal

In this column in May there was included the following sentence: "We do believe the mineral collecting hobby is on the wane because the supply of cabinet minerals is almost depleted and collecting areas are practically non-existent." Ralph Dietz of China Lake, California, disagrees with this statement and offers some good supporting evidence.

He writes: "I think you owe a public apology to the thousands of mineral collectors (many of whom read your magazine). I readily grant that the lapidary hobby far outstrips the mineral hobby and probably always will but there are more mineral collectors than ever before and their number will probably continue to grow; not as fast as the lapidaries, but grow nevertheless. As far as the cabinet specimens being depleted (almost, as you said) take a look at the offerings of the dealers. If you want to buy, the dealers have better stocks now than at any time in the past ten years.

"Localities practically non-existent? A few months ago we uncovered in an old locality near Lone Pine some of the finest amazonite crystals ever found anywhere and also some beryl crystals eight inches long and two inches in diameter. Cinco, which many have said is all worked out, produced 15 fine feldspar crystals in two hours work including some bevano twins. The colemanite desposits in Death Valley are producing some of their best material right now and a new locality in the Mt. Blanco district was found last fall that has produced some specimens that any museum would be proud to have and there are tons of material there, as in all other deposits in the Blanco district. In the Coast Range of California a while back were found some of the finest perovskite crystals known anywhere. Not only are they good specimens from a collector's standpoint, but if you showed them to your non-hobby friends along with some of the best Horse Canyon cabochons there would be as much ooh-ing and ah-ing over the perovskite as over the cabs.

"I could go on listing recent finds like this for pages. I haven't scratched the surface of recent California finds and there are a lot of other states. Even the New England states are producing fine specimens today and the mineral hobby there is many times older than out here. Last summer I collected in northern New Mexico and that place has hardly been touched by mineral collectors. I found very nice specimens of a mineral that is not even listed as occurring in the state. It is the same story in Colorado, Utah, Arizona, Idaho and Montana to name only those I have knowledge about.

"No, Leland, mineral collecting is not finished; good specimens are still to be found; localities where a few hours' work will produce good specimens are not all worked out. More power to the lap-hounds and may their tribe increase. I am one of them myself and proud of it but I am also a mineral collector and so are thousands of others and our tribe is also increasing. Back off and take another look Leland—you missed something."

Well Ralph, that's good news. Rumor has it that our correspondent may soon become editor of a mineral magazine and we offer the comment that our statement was

based, to some degree, on an analysis of private correspondence with several other editors. We have a pretty fair mineral collection, and it is the only thing we spend any money on for we have enough cutting material for a thousand years of cutting. We have rules about the purchase of a mineral specimen. It must be good; the structure and color must be clearly observable; it must be as large as one fist but not as big as two. Every time we go to a show we look for mineral specimens in that category and they have become increasingly scarce. Last year at Sacramento we succeeded in buying a really fine garnet specimen but few good specimens were offered by any dealer that were larger than a horse chestnut. The most recent show we attended was the Glendale show. There were some good minerals there but not like the old days. For years we have been looking for a fine adamite specimen. We saw only one we cared to own and we had to pay \$30 for it.

We didn't say the mineral collecting hobby was finished; that good specimens were not to be found. Mr. Dietz is lucky; he lives in one of the greatest collecting areas in the world and we described it fully in the last issue. But we still believe that there are not as many mineral collectors as there were ten years ago except perhaps right here in California where we know the number has increased. All hobbies that take people outdoors have grown enormously in the number of devotees in the last five years in California. We know from personal experience that the purchase of good mineral specimens is far more difficult than it used to be; that dealers do not have the stocks they had ten years ago; that you can't buy a tourmaline crystal as big as your thumb anywhere and that a piece of kunzite larger than a few grams hasn't been offered for sale by anyone to our knowledge for years. A friend of ours just hit a pocket of kunzite. One crystal weighs five pounds and he has a bushel of pieces weighing several ounces. But he won't part with a piece at any price. Contrast this with the days when the finest tourmaline crystals used to be sent by the ton to China for carving.

We have always said that "there's more in the earth than has ever been taken out" but an occasional find of some good stuff doesn't prove it. Whatever is found has a ready market and the finder is usually aware of it. We think if any proof is needed as to our belief in the scarcity of good mineral specimens it can be found in the increasing hordes of "micro-mounters." When pieces of fine mineral become so scarce that one needs a microscope to appreciate them then one could wish that there were more like Ralph Dietz to find some man-sized stuff. There were no micro-mounters in Kunz' day.

Indeed we hope the trend is the other way; that new wonderful fields of fine specimens will soon be discovered and that they will become available. They are needed, and we don't string along with the thoughts of some of the old time mineral collectors that if anything is discovered the lapidaries will cut it all up into cabs. Mineral collecting and gem cutting go together. We don't feel we owe an apology to the mineral collectors, Ralph, for we haven't maligned them.

FRIENDS OF FRANCES AND JACK FRITTS

formerly of Hilton's Gem Shop, when driving through Corona, Highway 18, are asked to stop and see their new shop, located at 315 W. 6th St. They have many fine rock specimens including the hard to get gem Chrysocolla. Navajo rugs and gifts also on hand.

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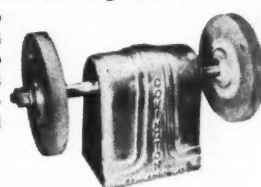
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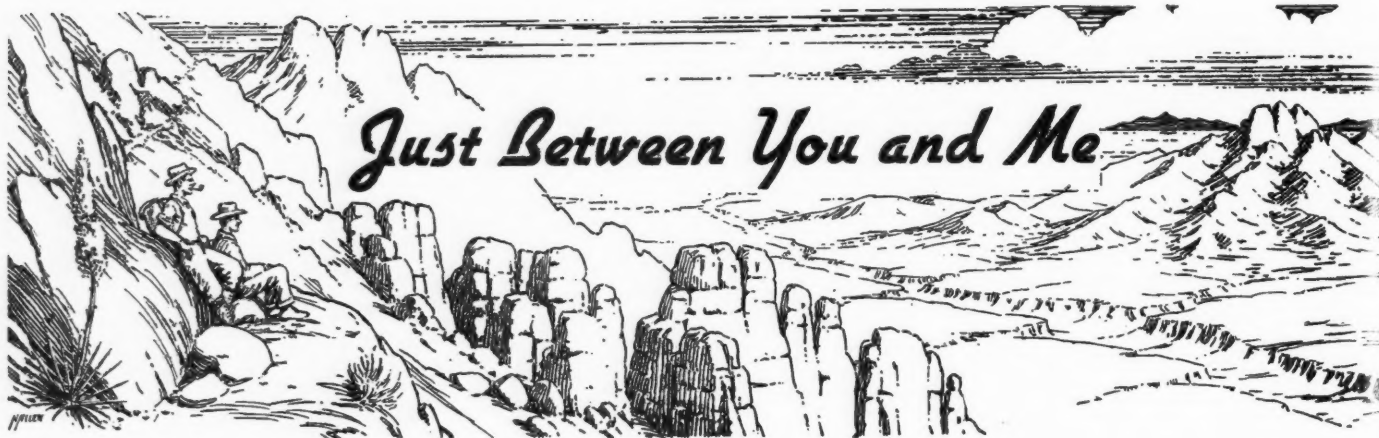
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By RANDALL HENDERSON

DURING THE first two weeks in June, Cyria and I accompanied Harry Aleson on a boat trip down Utah's Escalante River to its junction with the Colorado River, and thence through Glen Canyon to Lee's Ferry. The rain gods had been very stingy with their moisture in southern Utah during the previous winter months, and we spent a strenuous eight days wrangling two rubber boats over the sandbars and rocks of the shallow Escalante. I will write a more detailed report of the experience for a later issue of *Desert*.

On the trip over the North Rim road to Escalante where our boat trip was to start, we passed through Fredonia, Kanab and Glendale, Utah. I love the peace and industry of these thrifty little Mormon towns. The Mormons in their smaller communities have clung tenaciously to a way of life which prevailed in the small towns of the Middle West a half century ago. Nearly every family has a cow and a horse or two in the barn, chickens to supply eggs for the household, with perhaps a few extra to sell, fruit trees around the house and a vegetable garden in the back yard.

These people enjoy a measure of independence unknown to the more sophisticated younger generation of today. Their comfort and security is determined very largely by the work they do with their own hands. Striking bakers or streetcar motormen or coal miners in the distant industrial centers do not disturb their way of life.

But they pay a price for the security and independence they enjoy. Cows have to be milked and the chickens fed twice a day seven days a week. There is no time for weekend motor trips. So, you and I probably will continue to buy our milk and eggs and vegetables at the nearest market, and tolerate as best we can the insecurities of living in a society where a strong autocratic government is necessary to protect us from the power and avarice of both monopolistic enterprise and organized labor.

But if you really want a quiet inexpensive vacation, I will recommend two weeks or a month in Kanab or Richfield or any one of a score of Mormon towns in southern Utah. You'll find no Hollywood glamor there—but Cyria and I paid \$2.00 a day for a big parlor bedroom in a spacious old-fashioned home at mile-high Escalante.

The Mormon communities seldom go in for chamber of commerce ballyhoo. They have no night clubs or bingo palaces for entertainment. They offer only peace and simplicity and the majesty of great red sandstone cliffs fringed with juniper and pinyon. It is a grand place only for those who have learned to appreciate the artistry of natural things—and for those who enjoy their own companionship.

We spent a pleasant hour with Dr. Harold Bryant, superintendent of the Grand Canyon National Park. He took us through his "naturalist's workshop" where the park rangers over a period of years have been assembling exhibits and compiling information for a graphic presentation of the story of Grand Canyon—its geological history, its prehistoric people, its plant and animal life and the recorded history of the region. The exhibits are nearly completed—but await the time when Congress will provide funds for a great museum building in which they can be housed for display. At present much of the material and data is tucked away in drawers and files.

It is an important project—important because we humans would dwell together more peacefully if we were familiar with the environmental influences which brought us to our present stage of development. Actually, our differing racial characteristics are due mainly to geography and climate not to superior or inferior mental endowments.

I hope to see the time when the story of evolution will be taught in every grade of every school in the land. I am sure it will take some of the arrogance out of some of my fellow-citizens if they are confronted with irrefutable evidence that their ancestors were insignificant little one-celled creatures with less brains than a black ant.

• • •

Fifteen years ago, when *Desert Magazine* was still in the dream stage, I spent an evening at the Desert Inn in Palm Springs discussing the project with Nellie Coffman. I went to her for advice, for I felt that she, better than any other person in the Southwest, would envision the possibilities of such a publication as this—and I wanted the benefit of her judgment.

Jimmy Swinnerton, the cartoonist, was there, and the three of us talked for hours about the desert, and the editorial policies of a magazine which would serve this arid region. For me, it was a stimulating experience—and the *Desert Magazine* of today varies little from the pattern discussed that evening.

Nellie Coffman died early in the morning of June 10, following a heart attack. She was 82. A simple graveside service was held at Palm Springs cemetery.

I would add my tribute to those of thousands of others who were privileged to know Nellie Coffman. She never sought fame, yet her name became known far and wide as a symbol of courage and vision. She never sought wealth, and yet the Inn which she planned and built probably is valued in the millions.

She was an idealist with a tremendous endowment of common sense; she was a pioneer with vision and an amazing capacity for work. Her name was associated with every worthwhile cultural activity in the community for 40 years.

We will always honor the name of Nellie Coffman.

BOOKS OF THE SOUTHWEST . . .

RAIL LINE WHICH OPENED THE WEST

Because progress and development are inexorably tied in with transportation and communication, and because there is for almost everyone an aura of romance about railroads and railroading, countless writers have dealt with the subject, both in fiction and in historical books. Far better qualified than most for this task was John Debo Galloway. He is rated one of the great engineers who had an important part in development of the West. He took a leading role in the reconstruction of San Francisco following the great earthquake and fire of 1906. But his life was filled with interests far beyond his professional practice as an engineer. He had a passionate fondness for historical research—and in gathering material for *The First Transcontinental Railroad* he went over all of the route of the first transcontinental line, some parts of it many times.

His known accuracy gained for him access to the early records of the Southern Pacific Railroad (successor to the Central Pacific Railroad) and those of the Union Pacific Railroad. So by combining his own knowledge with all available historical data, Galloway was able to tell both interestingly and with commendable accuracy the story of construction of the first Pacific railroad between Omaha on the Missouri River and Sacramento in California.

Construction of the first transcontinental railroad in the sixties was the crowning achievement of this railroad era. It was, in the opinion of Galloway, the greatest engineering project of the nineteenth century. His account features the engineering and construction problems—but he doesn't forget the human element. Personalities, politics, intrigue all played a part in the unprecedented venture, and Galloway pictures them all.

Driving of the golden spike connecting the Central Pacific and the Union Pacific at Promontory, Utah, on May 10, 1869, is climax of the story. This opened half a continent to settlement and development. It is a thrilling story.

Published 1950 by Simmons-Boardman Publishing Company, 30 Church Street, New York. 303 pp., 72 photographs, end-paper route maps, biblio. and index. \$5.00.

This book may be ordered from
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Written for the Beginner . . .

"... written for the beginner, the one who does not know what a gold pan or sluice box or even gold looks like." This is the way Jack Douglas, "The Old Prospector," describes his little booklet *Panning Gold*. Simply written, it tells what placer mining is; describes various home-made devices for dry and wet panning; tells how to pan gold; where to look for placer gold; suggests camping equipment and supplies needed. Published 1950 by Jack Douglas, 32 pp., paper cover. 50c.

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Easter Drama Now in Print . . .

Since 1942 increasing numbers of people have witnessed the Easter drama presented by the Mecca Civic Council in Box Canyon, California. Until recently this play, *The Master Passes By*, written by Helen Drusilla Bell, has been available only in mimeographed form. However, as the popularity of this outdoor drama became more widespread there has been increasing demand for copies of the play, and Lawrence G. Newhouse of Vista, California, has now published it in a pleasing 54-page format with art paper cover. \$1.00.

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